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JOHN LOCKE ESQ.R

PHILOSOPHICAL

BEAUTIES

SELECTED

From the Works of

JOHN LOCKE, ESQ.

CONTAINING

THE CONDUCT OF THE UNDERSTANDING; ELEMENTS OF NATURAL PHILOSOPHY; THE STUDIES NECESSARY FOR A GENTLEMAN;

AND

A DISCOURSE OF MIRACLES.

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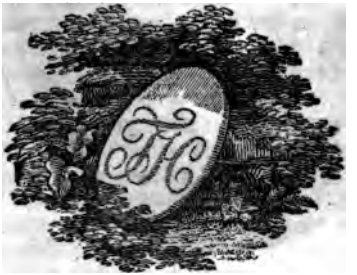
To which is prefixed,

SOME ACCOUNT OF HIS LIFE.



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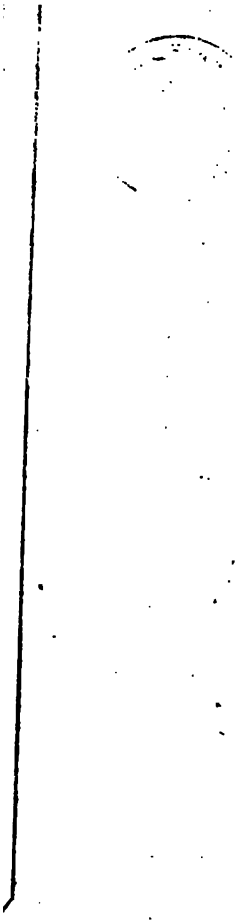

MEMOIRS

OF

JOHN LOCKE, ESQ.

THIS eminent philosopher, the most celebrated of the age he lived in and one of the brightest ornaments of English leterature, was descended from a genteel family in Somersetshire, born at Wrington, near Bristol, in 1632, bred up with great strictness in his infancy, and then sent to Westminster school. From thence he removed to Christchurch in Oxford, of which he became a student in 1651, and made a distinguished figure in learning. Having in 1655 and 1658 taken both his degrees in arts, he entered on the study of physic, went through the usual courses preparatory to the practice, and soon made a proficiency in that profession at Oxford. But his constitution not being able to bear all the necessary fatigue, he gladly embraced an offer that was made to him of going abroad in quality of secretary to Sir William Swan, who was appointed envoy to the elector of Brandenburg and some other German Princes, in 1664.

This employ continuing only a year, he returned to Oxford *and was prosecuting* his medical studies

there, when an accident brought him acquainted with Lord Ashley in 1666, who had a great opinion of his skill in physic; but upon further acquaintance regarded this as the least of his qualifications. Accordingly he advised him to turn his thoughts another way, and would not suffer him to practice physic out of his house, except among some of his particular friends. He urged him to apply himself to the study of political subjects, both ecclesiastical and civil. This advice proved very agreeable to Locke's temper, and he quickly made so considerable a progress in it, that he was consulted by his patron upon all occasions, who likewise introduced him to the acquaintance of the Duke of Buckingham, the Earl of Halifax, and some others of the most eminent persons of that time.

He had conceived an early disgust against the methods of Aristotle, and had a particular aversion to the scholastic disputations. In this disposition he read Des Cartes's philosophy with pleasure; but, upon mature consideration, finding it wanted a proper ground-work in experiments, he resolved to attempt something in that way. Accordingly, having now some leisure, he began to form the plan of his "Essay on Human Understanding" in 1671, but was hindered from making any great progress in it by other employment in the service of his patron, who, having been created Earl of Shaftesbury and made Lord Chancellor the following year, appointed him secretary of the presentations. He held this place till November 1673, when the great seal was taken from his master, and consequently, the secretary, who was privy to his

most secret affairs, fell into disgrace, and afterwards assisted in some pieces which the earl procured to be published, in order to excite the nation to watch the Roman Catholics, and oppose their designs. However, as his lordship was still resident at the board of trade, Locke also continued in his post of secretary to a commission from that board, which had been given him by his lordship this same year in the month of June, and was worth 500l. per annum, and which he enjoyed till December 1674, when the commission was dissolved.

This year, February 6, he took his batchelor's degrees in physic at Oxford, and the following summer went to Montpeliere as he was inclinable to a consumption. Having left Montpeliere in 1677, he wrote from Paris to Dr. Mapletoft, a learned physician, and professor of Gresham College, intimating, that in case of a vacancy by Dr. Sydenham's marriage, he should be glad to succeed him.

Locke continued abroad till he was sent for by the Earl of Shaftesbury in 1679, when his lordship was made president of Sir William Temple's council; but having been again disgraced and imprisoned in less than half a year, he had no opportunity of serving our Author, who, notwithstanding remained firmly attached to him; and when he fled into Holland to avoid a prosecution for high treason, in 1682, he was followed by Locke, who found it necessary, for his own safety to continue abroad after his patron's death, with whom he was much suspected of being a confederate. On this account, he was removed from his student's place at Christchurch in 1684, by a special order from King

Charles II. as visitor of the college. Locke thought this proceeding very injurious, and on his return to England after the revolution, put in his claim to the studentship; but that society rejecting his pretensions, he declined the offer of being admitted a supernumerary student. In the same spirit when he was offered a pardon from James II. in 1685, by Sir William Purn, who had known him at College, he rejected it, alledging, that, being guilty of no crime, he had no occasion of a pardon. In May this year, the English envoy at the Hague demanded him to be delivered up by the states-general, on suspicion of being concerned in the Duke of Monmouth's invasion. Hereupon he lay concealed for near three months, during which he spent his time in writing books, and chiefly his "Essay on the Human Understanding." Towards the end of 1686, as the just mentioned suspicion was blown over, he appeared again in public. In 1687 he formed an assembly at Amsterdam, with Limborch, Le Clerc and others, for holding conferences upon subjects of learning; and about the end of the year finished his great work, the "Essay" &c. after upwards of nine years spent upon it.

Having returned to England, February 1689, the place of commissioner of appeals, worth 200l. per annum, was procured for him by Lord Mordaunt. About the same time he was offered to go abroad in a public character, and it was left to his choice whether he would be envoy at the court of the Emperor, that of the elector of Brandenburg, or any other where he thought the air most suitable to him; but he wavered all these on account of the infirm state of his health, which disposed him gladly

to accept another offer, that was made by Sir Thomas Masham and his Lady, of an apartment in their country seat at Oates, in Essex, about twenty-five miles from London. Hence he was made a commissioner of trade and plantations in 1695, which engaged him in the immediate business of the state; and with regard to the Church, he published a treatise the same year, to promote the scheme which King William had much at heart, of a comprehension with the Dissenters. This however drew him into a controversy, which was scarcely ended when he entered into another in defence of his Essay, which held till 1698. Soon after which the asthma, his constitutional disorder, encreasing with his years, began to subdue him; and he became so infirm that in 1700, he resigned his seat at the board of trade, because he could no longer bear the London air, sufficient for a regular attendance upon it. He died October 28, 1704, in the 73d year of his age. His body was interred in the church of Oates, where there is a decent monument erected to his memory, with a Latin inscription, written by himself. His works have been often printed separately, and also in three volumes folio, and ten 8vo. but a selection from *the* whole, including the *beauties* and rejecting the dry controversial parts, have never, till now, been presented to the Public.

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THE

BEAUTIES OF LOCKE.

INTRODUCTION.

SECT. I.

THE last resort a man has recourse to in the conduct of himself, is his understanding; for hough we distinguish the faculties of the mind, nd give the supreme command to the will, as to n agent; yet the truth is, the man which is the gent, determines himself to this or that voluntary ction, upon some precedent knowledge, or ap- earance of knowledge in the understanding. No nan ever sets himself about any thing but upon ome view or other, which serves him for a reason or what he does: and whatsoever faculties he mploys, the understanding with such light as it as, well or ill informed, constantly leads; and y that light, true or false, all his operative pow- rs are directed. The will itself, how absolute nd uncontroulable soever it may be thought, never ills in its obedience to the dictates of the under- anding. Temples have their sacred images, and e see what influence they have always had over great part of mankind. But in truth the ideas nd images *in men's minds* are the invisible pow- rs *that constantly govern* them, and to these they

all universally pay a ready submission. It is therefore of the highest concernment that great care should be taken of the understanding, to conduct it right in the search of knowledge, and in the judgment it makes,

The logic now in use has so long possessed the chair, as the only art taught in the schools for the direction of the mind in the study of the arts and sciences, that it would perhaps be thought an affectation of novelty to suspect, that rules that have served the learned world these two or three thousand years, and which without any complaint of defects the learned have rested in, are not sufficient to guide the understanding. And I should not doubt but this attempt would be censured as vanity or presumption, did not the great lord Verulam's authority justify it; who, not servilely thinking learning could not be advanced beyond what it was, because for many ages it had not been, did not rest in the lazy approbation and applause of what was, because it was; but enlarged his mind to what might be. In his preface to his Novum Organum concerning logic he pronounces thus, "Qui summas dialecticæ partes "tribuerunt, atque inde fidissima scientiis præsidia "comparari putarunt, verissime et optime vide- "runt intellectum humanum sibi permissum me- "rito suspectum esse debere. Verum infirmior "omnino est malo medicina; nec ipsa mali ex- "pers. Siquidem dialectica, quæ recepta est, "licet ad civilia et artes, quæ in sermone et opi- "nione positæ sunt rectissime adhibeatur; naturæ "tamen subtilitatem longo intervallo non attingit, "et prænsando, quod non capit, ad errores potius

" stabiliendoes et quasi figendos, quam ad viam " veritati aperiendam valuit."

" They," says he, " who attributed so much to " logic, perceived very well and truly, that it was " not safe to trust the understanding to itself, with- " out the guard of any rules. But the remedy " reached not the evil, but became a part of it: " for the logic which took place, though it might " do well enough in civil affairs, and the arts " which consisted in talk and opinion, yet comes " very far short of subtilty in the real performances " of nature, and catching at what it cannot reach, " but served to confirm and establish errors, ra- " ther than to open a way to truth." And there- fore a little after he says, " That it is absolutely " necessary that a better and perfecter use and " employment of the mind and understanding " should be introduced." " Necessario requiritur " ut melior et perfectior mentis et intellectus hu- " mani usus et adoperatio introducatur."

SECT. II.

PARTS.

THERE is, it is visible, great variety in men's understandings, and their natural constitutions put so wide a difference between some men in this respect, that art and industry would never be able to master; and their very natures seem to want a foundation to raise on it that which other men easily attain unto.—Amongst men of equal educa- tion there is great *inequality* of parts. And the *woods of America, as well* as the schools of Athens,

produce men of several abilities in the same kind. Though this be so, yet I imagine most men come very short of what they might attain unto in their several degrees by a neglect of their understandings. A few rules of logic are thought sufficient in this case for those who pretend to the highest improvement; whereas I think there are a great many natural defects in the understanding capable of amendment, which are overlooked and wholly neglected. And it is easy to perceive that men are guilty of a great many faults in the exercise and improvement of this faculty of the mind, which hinder them in their progress, and keep them in ignorance and error all their lives. Some of them I shall take notice of, and endeavour to point out proper remedies for in the following discourse.

SECT. III.

REASONING.

BESIDES the want of determined ideas, and of sagacity, and exercise in finding out, and laying in order intermediate ideas, there are three miscarriages that men are guilty of in reference to their reason, whereby this faculty is hindered in them from that service it might do and was designed for. And he that reflects upon the actions and discourses of mankind, will find their defects in this kind very frequent, and very observable.

1. The first is, of those who seldom reason at all, but do and think according to the example of others, whether parents, neighbours, ministers, *or who else* they are pleased to make choice of to

have an implicit faith in, for the saving of themselves the pains and trouble of thinking and examining for themselves.

2. The second is, of those who put passion in the place of reason, and being resolved that shall govern their actions and arguments, neither use their own, nor hearken to other people's reason, any farther than it suits their humour, interest, or party; and these one may observe commonly content themselves with words which have no distinct ideas to them, though, in other matters, that they come with an unbiassed indifferency to, they want not abilities to talk and hear reason, where they have no secret inclination that hinders them from being untractable to it.

3. The third sort is, of those who readily and sincerely follow reason, but for want of having that which one may call large, sound, round about sense, have not a full view of all that relates to the question, and may be of moment to decide it. We are all short-sighted, and very often see but one side of a matter; our views are not extended to all that has a connection with it. From this defect I think no man is free. We see but in part, and we know but in part, and therefore it is no wonder we conclude not right from our partial views. This might instruct the proudest esteemer of his own parts how useful it is to talk and consult with others, even such as came short with him in capacity, quickness, and penetration; for since no one sees all, and we generally have different prospects of the same thing, according to our different, as I may say, *positions to it, it is* not incongruous to think, *nor beneath any man to* try, whether another may

not have notions of things which have escaped him, and which his reason would make use of if they came into his mind. The faculty of reasoning seldom or never deceives those who trust to it; its consequences from what it builds on are evident and certain, but that which it oftenest, if not only, misleads us in, is that the principles from which we conclude the grounds upon which we bottom our reasoning, are but a part, something is left out which should go into the reckoning to make it just and exact. Here we may imagine a vast and almost infinite advantage that angels and separate spirits may have over us; who in their several degrees of elevation above us, may be endowed with more comprehensive faculties, and some of them perhaps have perfect and exact views of all finite beings that come under their consideration, can, as it were, in the twinkling of an eye, collect together all their scattered and almost boundless relations. A mind so furnished, what reason has it to acquiesce in the certainty of its conclusions!

In this we may see the reason why some men of study and thought, that reason right, and are lovers of truth, do make no great advances in their discoveries of it. Error and truth are uncertainly blended in their minds; their decisions are lame and defective, and they are very often mistaken in their judgments: The reason whereof is, they converse but with one sort of men, they read but one sort of books, they will not come in the hearing but of one sort of notions; the truth is, they canton out to themselves a little Goshen in the intellectual world, *where light* shines, and, as they conclude, day

blesses them; but the rest of that vast expansum they give to the night and darkness, and so avoid coming near it. They have a pretty traffic with known correspondents in some little creek, within that they confine themselves, and are dexterous managers enough of the wares and products of that corner with which they content themselves, but will not venture out into the great ocean of knowledge, to survey the riches that nature hath stored other parts with, no less genuine, no less solid, no less useful, than what has fallen to their lot in the admired plenty and sufficiency of their own little spot, which to them contains whatsoever is good in the universe. Those who live thus mewed up within their own contracted territories, and will not look abroad beyond the boundaries and chance, conceit, or laziness, has set to their enquiries, but live separate from the notions, discourses, and attainments of the rest of mankind, may not amiss be represented by the inhabitants of the Marian islands; which being separate by a large tract of sea from all communion with the habitable parts of the earth, thought themselves the only people of the world. And though the straitness of the conveniencies of *life* amongst them had never reached so far as to the use of fire till the Spaniards, not many years since, in their voyages from Acapulco to Manilla brought it amongst them; yet in the want and ignorance of almost all things, they looked upon themselves even after that the Spaniards had brought amongst them the notice of variety of nations abounding in sciences, arts, and conveniencies of life, of which they knew nothing, they looked upon themselves, I say, as the happiest and

wisest people of the universe. But for all that no body, I think, will imagine them deep naturalists, or solid metaphysicians; no body will deem the quickest sighted amongst them to have very enlarged views in ethics or politics, nor can any one allow the most capable amongst them to be advanced so far in his understanding, as to have any other knowledge but of the few little things of his and the neighbouring islands within his commerce; but far enough from that comprehensive enlargement of mind which adorns a soul devoted to truth, assisted with letters, and a free consideration of the several views, and sentiments of thinking men of all sides. Let not men therefore that would have a sight of what every one pretends to, be desirous to have a sight of truth in its full extent, narrow and blind their own prospect. Let not men think there is no truth but in the sciences that they study, or the books that they read. To prejudge other men's notions before we have looked into them, is not to shew their darkness, but to put out our own eyes. "Try all things, hold fast that which is good," is a divine rule, coming from the father of light and truth; and it is hard to know what other way men can come at truth, to lay hold of it, if they do not dig and search for it as for gold and hid treasure; but he that does so must have much earth and rubbish before he gets the pure metal; sand, and pebbles, and dross usually lie behind with it, but the gold is nevertheless gold, and will enrich the man that employs his pains to seek and separate it. Neither is there any danger he should be deceived by the mixture. Every man *carries about him* a touchstone, if he will make

use of it to distinguish substantial gold from superficial glitterings, truth from appearances. And indeed the use and benefit of this touchstone, which is natural reason, is spoiled and lost only by assumed prejudices, overweening presumption, and narrowing our minds. The want of exercising it in the full extent of things intelligible, is that which weakens and extinguishes this noble faculty in us. Trace it, and see whether it be not so. The day-labourer in a country village has commonly but a small pittance of knowledge, because his ideas and notions have been confined to the narrow bounds of a poor conversation and employment. The low mechanic of a country town does somewhat outdo him; porters and coblers of great cities surpass them. A country gentleman, who, leaving Latin and learning in the university, removes thence to his mansion-house, and associates with neighbours of the same strain, who relish nothing but hunting and a bottle; with those alone he spends his time, with these alone he converses, and can away with no company whose discourse goes beyond what claret and dissoluteness inspire. Such a patriot, formed in this happy way of improvement, cannot fail, as we see, to give notable decisions upon the bench of quarter-sessions, and eminent proofs of his skill in politics, when the strength of his purse and party have advanced him to a more conspicuous station. To such a one truly an ordinary coffee-house gleaner of the city is an arrant statesman, and as much superior to, as a man conversant about Whitehall and the court, is to an ordinary shop-keeper. To carry this a little farther. Here is one muffled up in the *zeal and infallibility* of his own sect, and

will not touch a book, or enter into a debate with a person that will question any of those things which to him are sacred. Another surveys our differences in religion, with an equitable and fair indifference, and so finds probably that none of them are in every thing unexceptionable. These divisions and systems were made by men, and carry the mark of fallible on them; and in those whom he differs from, and till he opened his eyes had a general prejudice against, he meets with more to be said for a great many things than before he was aware of, or could have imagined. Which of these two now is most likely to judge right in our religious controversies, and to be most stored with truth, the mark all pretend to aim at? All these men that I have instanced in, thus unequally furnished with truth; and advanced in knowledge, I suppose of equal natural parts; all the odds between them has been the different scope that has been given to their understandings to range in, for the gathering up of information, and furnishing their heads with ideas, notions, and observations, whereon to employ their minds, and form their understandings.

It will possibly be objected, who is sufficient for all this? I answer, more than can be imagined. Every one knows what his proper business is, and what according to the character he makes of himself, the world may justly expect of him; and to answer that, he will find he will have time and opportunity enough to furnish himself, if he will not deprive himself by a narrowness of spirit, of those helps that are at hand. I do not say to be a good *geographer that* a man should visit every mountain, *river, promontory*, and creek upon the face of the

earth, view the buildings, and survey the land every where, as if he were going to make a purchase. But yet every one must allow that he shall know the country better that makes often sallies into it, and traverses it up and down, than he that like a mill horse goes still round in the same tract, or keeps within the narrow bounds of a field or two that delight him. He that will enquire out the best books in every science, and inform himself of the most material authors of the several sects of philosophy and religion, will not find it an infinite work to acquaint himself with the sentiments of mankind concerning the most weighty and comprehensive subjects. Let him exercise the freedom of his reason and understanding in such a latitude as this, and his mind will be strengthened, his capacity enlarged, his faculties improved: and the light which the remote and scattered parts of truth will give to one another, will so assist his judgment, that he will seldom be widely out, or miss giving proof of a clear head, and a comprehensive knowledge. At least, this is the only way I know to give the understanding its due improvement, to the full extent of its capacity, and to distinguish the two most different things I know in the world, a logical chicaner from a man of reason. Only he that would thus give the mind its flight, and send abroad his enquiries into all parts after truth, must be sure to settle in his head determined ideas of all that he employs his thoughts about, and never fail to judge himself, and judge unbiassedly of all that he receives from others, either in their writings or discourses. Reverence or prejudice must

not be suffered to give beauty or deformity to any of their opinions.

SECT. IV.

OF PRACTICE AND HABITS.

WE are born with faculties and powers capable almost of any thing, such at least as would carry us farther than can be easily imagined: but it is only the exercise of those powers which gives us ability and skill in any thing, and leads us towards perfection.

A middle-aged ploughman will scarce ever be brought to the carriage and language of a gentleman, though his body be as well proportioned, and his joints as supple, and his natural parts not any way inferior. The legs of a dancing-master, and the fingers of a musician, fall as it were naturally without thought or pains into regular and admirable motions. Bid them change their parts and they will in vain endeavour to produce like motions in the members not used to them, and it will require length of time and long practice to attain but some degrees of a like ability. What incredible and astonishing actions do we find rope-dancers and tumblers bring their bodies to; not but that sundry in almost all manual arts are as wonderful; but I name those which the world takes notice of for such, because on that very account, they give money to see them. All these admired motions beyond the reach and almost the *conception of* unpractised spectators, are nothing *but the mere* effects of use and industry in men,

whose bodies have nothing peculiar in them from those of the amazed lookers on.

As it is in the body, so it is in the mind; practice makes it what it is, and most even of those excellencies which are looked on as natural endowments, will be found, when examined into more narrowly, to be the product of exercise, and to be raised to that pitch only by repeated actions. Some men are remarked for pleasantness in raillery; others for apologues and apposite diverting stories. This is apt to be taken for the effect of pure nature, and that the rather, because it is not got by rules; and those who excel in either of them, never purposely set themselves to the study of it as an art to be learnt. But yet it is true, that at first some lucky hit which took with some body, and gained him commendation, encouraged him to try again, inclined his thoughs and endeavours that way, till at last he insensibly got a facility in it without perceiving how, and that is attributed wholly to nature, which was much more the effect of use and practice. I do not deny that natural disposition may often give the first rise to it; but that never carries a man far without use and exercise, and it is practice alone that brings the powers of the mind as well as those of the body to their perfection. Many a good poetic vein is buried under a trade, and never produces any thing for want of improvement. We see the ways of discourse and reasoning are very different, even concerning the same matter, at court or in the university. And he that will go but from Westminster-Hall to the Exchange, will find a different genius and turn in their ways of talking, and yet one cannot think that

all whose lot fell in the city were born with different parts from those who were bred at the university or inns of court.

To what purpose all this, but to shew that the difference so observable in men's understandings and parts, does not arise so much from the natural faculties as acquired habits. He would be laughed at that should go about to make a fine dancer out of a country hedger, at past fifty. And he will not have much better success, who shall endeavour at that age to make a man reason well, or speak handsomely who has never been used to it, though you should lay before him a collection of all the best precepts of logic or oratory. No body is made any thing by hearing of rules, or laying them up in his memory; practice must settle the habit of doing without reflecting on the rule, and you may as well hope to make a good painter or musician extempore by a lecture and instruction in the arts of music and painting as a coherent thinker, or strict reasoner by a set of rules, shewing him wherein right reasoning consists.

This being so that defects and weakness in men's understandings, as well as other faculties, come from want of a right use of their own minds, I am apt to think the fault is generally mislaid upon nature, and there is often a complaint of want of parts when the fault lies in want of a due improvement of them. We see men frequently dextrous and sharp enough in making a bargain, who, if you reason with them about matters of religion, appear perfectly stupid.

SECT. V.

IDEAS.

I WILL not here, in what relates to the right conduct and improvement of the understanding, repeat again the getting clear and determined ideas, and the employing our thoughts rather about them, than about sounds put for them, not of settling the signification of words which we use with ourselves in the scearch of truth, or with others in discoursing about it. Those hindrances of our understandings in the pursuit of knowledge, I have sufficiently enlarged upon in another place; so that nothing more needs here to be said of those matters.

SECT. VI.

PRINCIPLES.

THERE is another fault that stops or misleads men in their knowledge, which I have also spoken something of, but yet is necessary to mention here again, that we may examine it to the bottom, and see the root it springs from, and that is a custom of taking up with principles that are not self-evident, and very often not so much as true. It is not unusual to see men rest their opinions upon foundations that have no more certainty nor solidity than the propositions built on them, and embraced for their sake. *Such foundations* are these and the like, *viz. The founders or leaders* of my party are good

men, and therefore their tenets are true; it is the opinion of a sect that is erroneous, therefore it is false: it hath been long received in the world, therefore it is true; or it is new, and therefore false.

These, and many the like, which are by no means the measures of truths and falsehood, the generality of men make the standards by which they accustom their understanding to judge. And thus they falling into a habit of determining of truth and falsehood by such wrong measures, it is no wonder they should embrace error for certainty, and be very positive in things they have no ground for.

There is not any who pretends to the least reason, but when any of these his false maxims are brought to the test, must acknowledge them to be fallible, and such as he will not allow in those that differ from him; and yet after he is convinced of this, you shall see him go on in the use of them, and the very next occasion that offers argue again upon the same grounds. Would one not be ready to think that men are willing to impose upon themselves, and mislead their own understanding, who conduct them by such wrong measures, even after they see they cannot be relied on. But yet they will not appear so blameable as may be thought at first sight; for I think there are a great many that argue thus in earnest, and do it not to imposes on themselves or others. They are persuaded of what they say, and think there is weight in it, though in a like case they have been convinced there is none; but men would be intolerable to *themselves*, and contemptible to others, if they *should embrace* opinions without any ground, and

hold what they could give no manner of reason for. True or false, solid or sandy, the mind must have some foundation to rest itself upon, and as I have remarked in another place, it no sooner entertains any proposition, but it presently hastens to some hypothesis to bottom it on, till then it is unquiet and unsettled. So much do our own very tempers dispose us to a right use of our understandings, if we would follow as we should the inclinations of our nature.

In some matters of concernment, especially those of religion, men are not permitted to be always wavering and uncertain, they must embrace and profess some tenets or other; and it would be a shame, nay a contradiction too heavy for any one's mind to lie constantly under, for him to pretend seriously to be persuaded of the truth of any religion, and yet not to be able to give any reason of one's belief, or to say any thing for his preference of this to any other opinion; and therefore they must make use of some principles or other, and those can be no other than such as they have and can manage; and to say that they are not in earnest persuaded by them, and do not rest upon those they make use of, is contrary to experience, and to alledge that they are not misled when we complain they are.

If this be so, it will be urged, why then do they not rather make use of sure and unquestionable principles, rather than rest on such grounds as may deceive them, and will, as is visible, serve to support error as well as truth?

To this I answer, the reason why they do not *make use of better and* surer principles, is because

they cannot: but this inability proceeds not from want of natural parts (for those few whose case that is are to be excused) but for want of use and exercise. Few men are from their youth accustomed to strict reasoning, and to trace the dependance of any truth in a long train of consequences to its remote principles, and to observe its connection; and he that by frequent practice has not been used to this employment of his understanding, it is no more wonder that he should not, when he is grown into years, be able to bring his mind to it, than that he should not be on a sudden able to grave or design, dance on the ropes, or write a good hand, who has never practised either of them.

Nay, the most of men are so wholly strangers to this, that they do not so much as perceive their want of it; they dispatch the ordinary business of their callings by rote, as we say, as they have learnt it; and if at any time they miss success, they impute it to any thing rather than want of thought or skill, that they conclude (because they know no better) they have in perfection; or if there be any subject that interest or fancy has recommended to their thoughts, their reasoning about it is still after their own fashion, be it better or worse, it serves their turns, and is the best they are acquainted with; and therefore when they are led by it into mistakes, and their business succeeds accordingly, they impute it to any cross accident, or default of others, rather than to their own want of understanding; that is, what nobody discovers or complains of in himself. Whatsoever made his business *to miscarry*, it was not want of right thought *or judgment in* himself: he sees no such defect in

himself, but is satisfied that he carries on his designs well enough by his own reasoning, or at least should have done, had it not been for unlucky traverses not in his power. Thus being content with this short and very imperfect use of his understanding, he never troubles himself to seek out methods of improving his mind, and lives all his life without any notion of close reasoning, in a continued connection of a long train of consequences from sure foundations, such as is requisite for the making out, and clearing most of the speculative truths most men own to believe and are most concerned in. Not to mention here what I shall have occasion to insist on by-and-by more fully, *viz.* that in many cases it is not one series of consequences will serve the turn, but many different and opposite deductions must be examined and laid together, before a man can come to make a right judgment of the thing in question. What then can be expected from men that neither see the want of any such kind of reasoning as this! nor if they do, know they how to set about it, or could perform it. You may as well set a countryman who scarce knows the figures, and never cast up a sum of three particulars, to state a merchant's long account, and find the true balance of it?

What then should be done in the case? I answer, we should always remember what I said above, that the faculties of our souls are improved and made useful to us, just after the same manner as our bodies are. Would you have a man write or paint, dance or fence well, or perform any other manual operation dexterously and with ease, let him have never so much vigour and activity, sup-

pleness and address naturally, yet nobody expects this from him unless he has been used to it, and has employed time and pains in fashioning and forming his hand or outward parts to these motions. Just so it is in the mind; would you have a man reason well, you must use him to it betimes, exercise his mind in observing the connection of ideas, and following them in train. Nothing does this better than mathematics, which therefore I think should be taught all those who have the time and opportunity, not so much to make them mathematicians, as to make them reasonable creatures; for though we all call ourselves so, because we are born to it if we please, yet we may truly say nature gives us but the seeds of it; we are born to be, if we please, rational creatures, but it is use and exercise only that makes us so, and we are indeed so no farther than industry and application has carried us. And therefore in ways of reasoning which men have not been used to, he that will observe the conclusions they take up, must be satisfied they are not at all rational.

This has been the less taken notice of, because every one in his private affairs uses some sort of reasoning or other, enough to denominate him reasonable. But the mistake is, that he that is found reasonable in one thing is concluded to be so in all, and to think or say otherwise, is thought so unjust an affront, and so senseless a censure, that nobody ventures to do it. It looks like the degradation of a man below the dignity of his nature. It is true, that he that reasons well in any one thing, has a *mind* naturally capable of reasoning well in others, *and to the same* degree of strength and clearness,

and possibly much greater, had his understanding been so employed. But it is as true, that he who can reason well to-day about one sort of matters, cannot at all reason to-day about others, though perhaps a year hence he may. But wherever a man's rational faculty fails him, and will not serve him to reason, there we cannot say he is rational, how capable soever he may be by time and exercise to become so.

Try in men of low and mean education, who have never elevated their thoughts above the spade and the plough, nor looked beyond the ordinary drudgery of a day-labourer. Take the thoughts of such an one, used for many years to one tract, out of that narrow compass he has been all his life confined to, you will find him no more capable of reasoning than almost a perfect natural. Some one or two rules on which their conclusions immediately depend, you will find in most men have governed all their thoughts; these, true or false, have been the maxims they have been guided by: take these from them, and they are perfectly at a loss; their compass and pole-star then are gone, and their understanding is perfectly at a nonplus, and therefore they either immediately return to their old maxims again, as the foundations of all truth to them, notwithstanding all that can be said to shew their weakness: or if they give them up to their reasons, they with them give up all truth and further enquiry, and think there is no such thing as certainty. For if you would enlarge their thoughts, and settle them upon more remote and surer principles, they either cannot easily apprehend *them, or if they* can, know not what use

to make of them; for long deductions from remote principles, is what they have not been used to, and cannot manage.

What then, can grown men never be improved or enlarged in their understandings? I say not so; but this I think I may say, that it will not be done without industry and application, which will require more time and pains than grown men, settled in their course of life, will allow to it, and therefore very seldom is done. And this very capacity of attaining it by use and exercise only, brings us back to that which I laid down before, that it is only practice that improves our minds as well as bodies, and we must expect nothing from our understandings any farther than they are perfected by habits.

The Americans are not all born with worse understandings than the Europeans, though we see none of them have such reaches in the arts and sciences. And among the children of a poor countryman, the lucky chance of education and getting into the world, gives one infinitely the superiority in parts over the rest, who continuing at home, had continued also just of the same size with his brethren.

He that has to do with young scholars, especially in mathematics, may perceive how their minds open by degrees, and how it is exercise alone that opens them. Sometimes they will stick a long time at a part of a demonstration, not for want of will or application, but really for want of perceiving the connection of two ideas; that, to one whose understanding is more exercised, is as *visible as any thing* can be. The same would be *with a grown* man beginning to study mathema-

the understanding for want of use, often
s in a very plain way, and he himself that is
izzled, when he comes to see the connection,
lers what it was he stuck at in a case so plain.

SECT. VII.

MATHEMATICS.

HAVE mentioned mathematics as a way to set-
the mind an habit of reasoning closely and in
; not that I think it necessary that all men
ld be deep mathematicians, but that having
he way of reasoning, which that study neces-
brings the mind to, they might be able to
fer it to other parts of knowledge as they shall
occasion. For in all sorts of reasoning, every
e argument should be managed as a mathema-
demonstration, the connection and depen-
e of ideas should be followed till the mind is
ght to the source on which it bottoms, and
ves the coherence all along; though in proofs
obability, one such train is not enough to set-
e judgment as in demonstrative knowledge.
here a truth is made out by one demonstra-
there needs no farther enquiry; but in all
abilities, where there wants demonstration to
lish the truth beyond doubt, there it is not
gh to trace one argument to its source, and
ve its strength and weakness, but all the ar-
nts, after having been so examined on both
, must be laid in balance one against another,
pon *the whole* the understanding determine
ent. *This is* a way of reasoning the under-

standing should be accustomed to, which is so different from what the illiterate are used to, that even learned men oftentimes seem to have little or no notion of it. Nor is it to be wondered, since the way of disputing in the schools leads them quite away from it, by insisting on one topical argument, by the success of which the truth or falsehood of the question is to be determined, and victory adjudged to the opponent or defendant; which is all one as if he should balance an account by one sum charged and discharged, when there are an hundred others to be taken into consideration.

This, therefore, it would be well if men's minds were accustomed to, and that early, that they might not erect their opinions upon one single view, when so many others are requisite to make up the account, and must come into the reckoning before a man can form a right judgment. This would enlarge their minds, and give a due freedom to their understandings, that they might not be led into error by presumption, laziness, or precipitancy; for I think nobody can approve such a conduct of the understanding, as should mislead it from truth, though it be never so much in fashion to make use of it.

To this perhaps it will be objected, that to manage the understanding as I propose would require every man to be a scholar, and to be furnished with all the materials of knowledge, and exercised in all the ways of reasoning. To which I answer, that it is a shame for those that have time and the means to attain knowledge, to want any helps or assistance for the improvement of their

understandings that are to be got, and to such I would be thought here chiefly to speak. Those, methinks, who by the industry and parts of their ancestors have been set free from a constant drudgery to their backs and their bellies, should bestow some of their spare time on their heads, and open their minds by some trials and essays in all the sorts and matters of reasoning. I have before mentioned mathematics, wherein algebra gives new helps and views to the understanding. If I propose these, it is not, as I said, to make every man a thorough mathematician, or a deep algebraist; but yet I think the study of them is of infinite use even to grown men; first by experimentally convincing them that to make any one reason well, it is not enough to have parts wherewith he is satisfied, and that serve him well enough in his ordinary course. A man in those studies will see, that however good he may think his understanding, yet in many things, and those very visible, it may fail him. This would take off that presumption that most men have of themselves in this part; and they would not be so apt to think their minds wanted no help to enlarge them, that there could be nothing added to the acuteness and penetration of their understanding.

Secondly, the study of mathematics would shew them the necessity there is in reasoning, to separate all the distinct ideas, and see the habitudes that all those concerned in the present enquiry have to one another, and to lay by those which relate not to the proposition in hand, and wholly to leave them out of the reckoning. This is that *which, in other subjects* besides quantity, is what

is absolutely requisite to just reasoning, though in them it is not so easily observed, nor so carefully practised. In those parts of knowledge where it is thought demonstration has nothing to do, men reason as it were in the lump; and if upon a summary and confused view, or upon a partial consideration, they can raise the appearance of a probability, they usually rest content; especially if it be in a dispute where every little straw is laid hold on, and every thing that can but be drawn in any way to give colour to the argument, is advanced with ostentation. But that mind is not in a posture to find the truth that does not distinctly take all the parts asunder, and omitting what is not at all to the point, draw a conclusion from the result of all the particulars which any way influence it. There is another no less useful habit to be got by an application to mathematical demonstrations, and that is of using the mind to a long train of consequences; but having mentioned that already, I shall not again here repeat it.

As to men whose fortunes and time is narrower, what may suffice them is not of that vast extent as may be imagined, and so comes not within the objection.

Nobody is under an obligation to know every thing. Knowledge and science in general, is the business only of those who are at ease and leisure. Those who have particular callings ought to understand them; and it is no unreasonable proposal, nor impossible to be compassed, that they should think and reason right about what is their daily employment. This one cannot think them incapable of, without levelling them with the brutes,

and charging them with a stupidity below the rank of rational creatures.

SECT. VIII.

RELIGION.

BESIDES his particular calling for the support of this life, every one has a concern in a future life, which he is bound to look after. This engages his thoughts in religion; and here it mightily lies upon him to understand and reason right. Men therefore cannot be excused from understanding the words, and framing the general notions relating to religion right. The one day in seven, besides other days of rest, allows in the Christian world time enough for this, (had they no other idle hours,) if they would but make use of these vacancies from their daily labour, and apply themselves to an improvement of knowledge, with as much diligence as they often do to a great many other things that are useless, and had but those that would enter them according to their several capacities in a right way to this knowledge. The original make of their minds is like that of other men, and they would be found not to want understanding fit to receive the knowledge of religion, if they were a little encouraged and helped in it as they should be. For there are instances of very mean people, who have raised their minds to a great sense and understanding of religion. And though these have not been so frequent as could be wished, yet they are enough to clear that condition *of life from a necessity* of gross ignorance, and to

shew that more might be brought to be rational creatures and Christians, (for they can hardly be thought to be really so, who, wearing the name, know not so much as the very principles of that religion,) if due care were taken of them. For, if I mistake not, the peasantry lately in France, (a rank of people under a much heavier pressure of want and poverty than the day-labourers in England,) of the reformed religion, understood it much better, and could say more for it than those of a higher condition among us.

But if it shall be concluded that the meaner sort of people must give themselves up to a brutish stupidity in the things of their nearest concernment, which I see no reason for, this excuses not those of a freer fortune and education, if they neglect their understandings, and take no care to employ them as they ought, and set them right in the knowledge of those things, for which principally they were given them. At least those whose plentiful fortunes allow them the opportunities and helps of improvements, are not so few, but that it might be hoped great advancements might be made in knowledge of all kinds, especially in that of the greatest concern and largest views, if men would make a right use of their faculties, and study their own understandings.

SECT. IX.

IDEAS.

OUTWARD corporeal objects, that constantly *importune* our senses, and captivate our appetites,

fail not to fill our heads with lively and lasting ideas of that kind. Here the mind needs not be set upon getting greater store; they offer themselves fast enough, and are usually entertained in such plenty, and lodged so carefully, that the mind wants room or attention for others that it has more use and need of. To fit the understanding therefore for such reasoning as I have been above speaking of, care should be taken to fill it with moral and more abstract ideas; for these not offering themselves to the senses, but being to be framed to the understanding, people are generally so neglectful of a faculty they are apt to think wants nothing, that I fear most men's minds are more unfurnished with such ideas than is imagined. They often use the words, and how can they be suspected to want the ideas? What I have said in the third book of my Essay will excuse me from any other answer to this question. But to convince people of what moment it is to their understandings to be furnished with such abstract ideas steady and settled in it, give me leave to ask how any one shall be able to know, whether he be obliged to be just, if he has not established ideas in his mind of obligation and of justice, since knowledge consists in nothing but the perceived agreement or disagreement of those ideas; and so of all others, the like which concern our lives and manners. And if men do find a difficulty to see the agreement or disagreement of two angles which lie before their eyes, unalterable in a diagram, how utterly impossible will it be to perceive it in ideas, that have no other sensible objects to represent *them to the* mind but sounds, with

which they have no manner of conformity, and therefore had need to be clearly settled in the mind themselves, if we would make any clear judgment about them. This, therefore, is one of the first things the mind should be employed about in the right conduct of the understanding, without which it is impossible it should be capable of reasoning right about those matters. But in these, and all other ideas, care must be taken that they harbour no inconsistencies, and that they have a real existence where real existence is supposed, and are not mere chimeras with a supposed existence.

SECT. X.

PREJUDICES.

EVERY one is forward to complain of the prejudices that mislead other men or parties, as if he were free and had none of his own. This being objected on all sides, 'tis agreed that it is a fault and an hindrance to knowledge. What now is the cure? No other but this, that every man should let alone other's prejudices and examine his own. No body is convinced of his by the accusation of another, he recriminates by the same rule and is clear. The only way to remove this great cause of ignorance and error out of the world, is, for every one impartially to examine himself. If others will not deal fairly with their own minds, does that make my errors truths, or ought it to make me in love with them, and willing to impose on myself? If others love cataracts *on* their eyes, should that hinder me from couch-

ing of mine as soon as I could? Every one declares against blindness, and yet who almost is not fond of that which dims his sight, and keeps the clear light out of his mind, which should lead him into truth and knowledge? False or doubtful positions, relied upon as unquestionable maxims, keep those in the dark from truth, who build on them. Such are usually the prejudices imbibed from education, party, reverence, fashion, interest, &c. This is the mote which every one sees in his brother's eye, but never regards the beam in his own. For who is there almost that is ever brought fairly to examine his own principles, and see whether they are such as will bear the trial; but yet this should be one of the first things every one should set about, and be scrupulous in, who would rightly conduct his understanding in the search of truth and knowledge.

To those who are willing to get rid of this great hindrance of knowledge, (for to such only I write) to those who would shake off this great and dangerous impostor prejudice, who dresses up falshood in the likeness of truth, and so dexterously hoodwinks men's minds, as to keep them in the dark, with a belief that they are more in the light than any that do not see with their eyes. I shall offer this one mark whereby prejudice may be known. He that is strongly of any opinion, must suppose, (unless he be self-condemned,) that his persuasion is built upon good grounds; and that his assent is no greater than what the evidence of the truth he holds forces him to; and that they are arguments, and not inclination or fancy that make him so confident and positive in his tenets. Now,

if after all his profession, he cannot bear any opposition to his opinion, if he cannot so much as give a patient hearing, much less examine and weigh the argument on the other side, does he not plainly confess it is prejudice governs him? And it is not the evidence of truth, but some lazy anticipation, some beloved presumption that he desires to rest undisturbed in. For if what he holds be as he gives out, well fenced with evidence, and he sees it to be true, what need he fear to put it to the proof? If his opinion be settled upon a firm foundation, if the arguments that support it, and have obtained his assent be clear, good, and convincing, why should he be shy to have it tried whether they be proof or not? He whose assent goes beyond his evidence, owes this excess of his adherence only to prejudice, and does, in effect, own it when he refuses to hear what is offered against it; declaring thereby, that it is not evidence he seeks, but the quiet enjoyment of the opinion he is fond of, with a forward condemnation of all that may stand in opposition to it, unheard and unexamined; which, what is it but prejudice? "Qui œquum statuerit parte inauditâ alteâ etiam si æquum statuerit haud æquus fuerit." He that would acquit himself in this case as a lover of truth, not giving way to any pre-occupation, or bias that may mislead him, must do two things that are not very common, nor very easy.

SECT. XI.

INDIFFERENCY.

FIRST, He must not be in love with any opinion, or wish it to be true, until he knows it to be so, and then he will not need to wish it: for nothing that is false can deserve our good wishes, nor a desire that it should have the place and force of truth; and yet nothing is more frequent than this. Men are fond of certain tenets upon no other evidence but respect and custom, and think they must maintain them, or all is gone, though they have never examined the ground they stand on, nor have ever made them out to themselves, or can make them out to others. We should contend earnestly for the truth, but we should first be sure that it is truth, or else we fight against God, who is the God of truth, and do the work of the devil, who is the father and propagator of lies; and our zeal, though never so warm, will not excuse us; for this is plainly prejudice.

SECT. XII.

EXAMINE.

SECONDLY, He must do that which he will find himself very averse to, as judging the thing unnecessary, or himself incapable of doing it. He must try whether his principles be certainly true or not, and how far he may safely rely upon them. This, whether fewer have the heart or the skill to

do, I shall not determine; but this I am sure, this is that which every one ought to do, who professes to love truth, and would not impose upon himself; which is a surer way to be made a fool of than by being exposed to the sophistry of others. The disposition to put any cheat upon ourselves, works constantly, and we are pleased with it, but are impatient of being bantered or misled by others.—The inability I here speak of, is not any natural defect that makes men uncapable of examining their own principles. To such, rules of conducting their understandings are useless, and that is the case of very few. The great number is of those whom the ill habit of never exerting their thoughts has disabled: the powers of their minds are starved by disuse, and have lost that reach and strength which nature fitted them to receive from exercise.—Those who are in a condition to learn the first rules of plain arithmetic, and could be brought to cast up an ordinary sum, are capable of this, if they had but accustomed their minds to reasoning: but they that have wholly neglected the exercise of their understandings in this way, will be very far at first from being able to do it, and as unfit for it as one unpractised in figures to cast up a shop-book, and perhaps think it as strange to be set about it. And yet it must nevertheless be confessed to be a wrong use of our understandings to build our tenets (in things where we are concerned to hold the truth) upon principles that may lead us into error. We take our principles at haphazard upon trust, and without ever having exa*mined them*, and then believe a whole system, up*on a presumption* that they are true and solid; and

what is all this but childish, shameful, senseless credulity?

In these two things, viz. an equal indifferency for all truth; I mean the receiving it in the love of it as truth, but not loving it for any other reason before we know it to be true; and in the examination of our principles, and not receiving any for such, nor building on them until we are fully convinced, as rational creatures, of their solidity, truth, and certainty, consists that freedom of the understanding which is necessary to a rational creature, and without which it is not truly an understanding. It is conceit, fancy, extravagance, any thing rather than understanding, if it must be under the constraint of receiving and holding opinions by the authority of any thing but their own, not fancy but perceived, evidence. This was rightly called imposition, and is of all other the worst and most dangerous sort of it. For we impose upon ourselves, which is the strongest imposition of all others; and we impose upon ourselves in that part which ought with the greatest care to be kept free from all imposition. The world is apt to cast great blame on those who have an indifferency for opinions, especially in religion. I fear this is the foundation of great error and worse consequences. To be indifferent which of two opinions is true, is the right temper of the mind, that preserves it from being imposed upon, and disposes it to examine with that indifferency, until it has done its best to find the truth, and this is the only direct and safe way to it. But to be indifferent whether we embrace falshood for truth, or no, is the great road to error. Those who are not indifferent which opi-

nion is true, are guilty of this; they suppose, without examining, that what they hold is true, and then think they ought to be zealous for it. Those, it is plain by their warmth and eagerness, are not indifferent for their opinions, but methinks are very indifferent whether they be true or false, since they cannot endure to have any doubts raised, or objections made against them: and it is visible they never have made any themselves, and so never having examined them, know not, nor are concerned, as they should be, to know whether they be true or false.

These are the common and most general miscarriages which I think men should avoid or rectify in a right conduct of their understandings, and should be particularly taken care of in education.—The business whereof in respect of knowledge, is not, as I think, to perfect a learner in all or any of the sciences, but to give his mind that freedom, that disposition, and those habits that may enable him to attain any part of knowledge he shall apply himself to, or stand in need of in the future course of his life.

This, and this only, is well principling, and not the instilling a reverence and veneration for certain dogmas under the specious title of principles, which are often so remote from that truth and evidence which belongs to principles, that they ought to be rejected as false and erroneous, and is often the cause, to men so educated, when they come abroad into the world, and find they cannot maintain the principles so taken up and rested in, to cast off all *principles* and turn perfect sceptics, regardless of *knowledge* and virtue.

There are several weaknesses and defects in the understanding, either from the natural temper of the mind, or ill habits taken up, which hinder it in its progress to knowledge. Of these there are as many possibly to be found, if the mind were properly studied, as there are diseases of the body, each whereof clogs and disables the understanding to some degree, and therefore deserve to be looked after and cured. I shall set down some few to excite men, especially those who make knowledge their business, to look into themselves, and observe whether they do not indulge some weakness, allow some miscarriages in the management of their intellectual faculty, which is prejudicial to them in the search of truth.

SECT. XIII.

OBSERVATION.

PARTICULAR matters of fact are the undoubted foundations on which our civil and natural knowledge is built: The benefit the understanding makes of them is to draw from them conclusions, which may be as standing rules of knowledge, and consequently of practice. The mind often makes not that benefit it should of the information it receives from the accounts of civil or natural historians, in being too forward, or too slow in making observations on the particular facts recorded in them.

There are those who are very assiduous in reading, and yet do not much advance their knowledge *by it. They are delighted* with the stories that are

told, and perhaps can tell them again, for they make all they read nothing but history to themselves; but not reflecting on it, not making to themselves observations from what they read, they are very little improved by all that crowd of particulars that either pass through, or lodge themselves in their understandings. They dream on in a constant course of reading and cramming themselves, but not digesting any thing, it produces nothing but an heap of crudities.

If their memories retain well, one may say they have the materials of knowledge, but like those for building, they are of no advantage, if there be no other use made of them but to let them lie heaped up together. Opposite to these there are others who lose the improvement they should make of matters of fact by a quite contrary conduct. They are apt to draw general conclusions, and raise axioms from every particular they meet with. These make as little true benefit of history as the other, nay, being of forward and active spirits, receive more harm by it; it being of worse consequence to steer one's thoughts by a wrong rule, than to have none at all, error doing to busy men much more harm, than ignorance to the slow and sluggish. Between these, those seem to do best who taking material and useful hints, sometimes from single matters of facts, carry them in their minds to be judged of, by what they shall find in history to confirm or reverse these imperfect observations; which may be established into rules fit to be relied on, when they are justified by a sufficient and wary *induction* of particulars. He that makes no such *reflection on* what he reads, only loads his mind

with a rhapsody of tales, fit in winter nights for the entertainment of others; and he that will improve every matter of fact into a maxim, will abound in contrary observations, that can be of no other use but to perplex and pudder him if he compares them; or else to misguide him, if he gives himself up to the authority of that, which for its novelty, or for some other fancy, best pleases him.

SECT. XIV.

BIAS.

NEXT to these we may place those who suffer their own natural tempers and passions they are possessed with to influence their judgments, especially of men and things that may any way relate to their present circumstances and interest. Truth is all simple, all pure, will bear no mixture of any thing else with it. It is rigid and inflexible to any bye interests; and so should the understanding be, whose use and excellency lies in conforming itself to it. To think of every thing just as it is in itself, is the proper business of the understanding, tho' it be not that which men always employ it to.—This all men at first hearing allow is the right use every one should make of his understanding. No body will be at such an open defiance with common sense, as to profess that we should not endeavour to know, and think of things as they are in themselves, and yet there is nothing more frequent than to do the contrary; and men are apt to excuse themselves, and think they have reason to do so, if they *have but a pretence* that it is for God, or a

good cause, that is, in effect, for themselves, their own persuasion, or party: for to those in their turns the several sects of men, especially in matters of religion, entitle God and a good cause.—But God requires not men to wrong or misuse their faculties for him, nor to lie to others or themselves for his sake; which they purposely do who will not suffer their understandings to have right conceptions of the things proposed to them, and designedly restrain themselves from having just thoughts of every thing, as far as they are concerned to enquire. And as for a good cause, that needs not such ill helps; if it be good, truth will support it, and it has no need of fallacy or falshood.

SECT. XV.

ARGUMENTS.

VERY much of kin to this is the hunting after arguments to make good one side of a question, and wholly to neglect and refuse those which favour the other side. What is this but wilfully to misguide the understanding, and is so far from giving truth its due value, that it wholly debases it: espouse opinions that best comport with their power, profit, or credit, and then seek arguments to support them. Truth light upon this way, is of no more avail to us than error; for what is so taken up by us, may be false as well as true, and he has not done his duty who has thus stumbled *upon* truth in his way to preferment.

There is another, but more innocent way of collecting arguments, very familiar amongst bookish men, which is to furnish themselves with the arguments they meet with *pro* and *con* in the questions they study. This helps them not to judge right, nor argue strongly, but only to talk copiously on either side, without being steady and settled in their own judgments: for such arguments gathered from other men's thoughts, floating only in the memory, are there ready indeed to supply copious talk with some appearance of reason, but are far from helping us to judge right. Such variety of arguments only distract the understanding that relies on them, unless it has gone farther than such a superficial way of examining; this is to quit truth for appearance, only to serve our vanity. The sure and only way to get true knowledge, is to form in our minds clear settled notions of things, with names annexed to those determined ideas.—These we are to consider, and with their several relations and habitudes, and not amuse ourselves with floating names, and words of indetermined signification, which we can use in several senses to serve a turn. It is in the perception of the habitudes and respects our ideas have one to another, that real knowledge consists; and when a man once perceives how far they agree or disagree one with another, he will be able to judge of what other people say, and will not need to be led by the arguments of others, which are many of them nothing but plausible sophistry. This will teach him to state the question right, and see whereon it turns; and thus he will stand upon his own legs, and know *by his own understanding*. Whereas, by

collecting and learning arguments by heart, he will not be but a retainer to others; and when any one questions the foundations they are built upon, he will be at a nonplus, and be fain to give up his implicit knowledge.

SECT. XVI.

HASTE.

LABOUR for labour's sake is against nature.—The understanding, as well as all the other faculties, chooses always the shortest way to its end, would presently obtain the knowledge it is about, and then set upon some new enquiry. But this, whether laziness or haste, often misleads it and makes it content itself with improper ways of search, and such as will not serve the turn. Sometimes it rests upon testimony, when testimony of right has nothing to do, because it is easier to believe than to be scientifically instructed. Sometimes it contents itself with one argument, and rests satisfied with that, as it were a demonstration; whereas the thing under proof is not capable of demonstration, and therefore must be submitted to the trial of probabilities, and all the material arguments *pro* and *con* be examined and brought to a balance. In some cases the mind is determined by probable topics in enquiries where demonstration may be had. All these, and several others, which laziness, impatience, custom, and want of use and attention lead men into, are misapplications of the understanding in the search of truth. In every question *the nature* and manner of the proof it is capable of

should first be considered, to make our enquiry such as it should be. This would save a great deal of frequently misemployed pains, and lead us sooner to that discovery and possession of truth we are capable of. The multiplying variety of arguments, especially frivolous ones, such as all that are merely verbal, is not only lost labour, but cumbers the memory to no purpose, and serves only to hinder it from seizing and holding of the truth in all those cases which are capable of demonstration. In such a way of proof the truth and certainty is seen, and the mind fully possesses himself of it; when in the other way of assent it only hovers about it, is amused with uncertainties. In this superficial way indeed the mind is capable of more variety of plausible talk, but is not enlarged as it should be in its knowledge. It is to this same haste and impatience of the mind also, that a not due tracing of the arguments to their true foundation, is owing; men see a little, presume a great deal, and so jump to the conclusion. This is a short way to fancy and conceit, and (if firmly embraced) to opiniatretry, but is certainly the farthest way about to knowledge. For he that will know, must, by the connection of the proofs, see the truth, and the ground it stands on: and therefore, it has for haste skipt over what he should have examined, he must begin and go over all again, or else he will never come to knowledge.

SECT. XVII.

DESULTORY.

ANOTHER fault of as ill consequence as this, which proceeds also from laziness with a mixture of vanity, is the skipping from one sort of knowledge to another. Some men's tempers are quickly weary of any one thing. Constancy and assiduity is what they cannot bear: the same study long continued in, is as intolerable to them as the appearing long in the same cloths or fashion is to a court lady.

SECT. XVIII.

SMATTERING.

OTHERS, that they may seem universally knowing, get a little smattering in every thing. Both these may fill their heads with superficial notions of things, but are very much out of the way of attaining truth or knowledge.

SECT. XIX.

UNIVERSALITY.

I DO not here speak against the taking a taste of every sort of knowledge; it is certainly very useful and necessary to form the mind, but then it *must be done* in a different way, and to a different *end*. *Not* for talk and vanity to fill the head with

with shreds of all kinds, that he who is possessed of such a frippery, may be able to match the discourses of all he shall meet with, as if nothing could come amiss to him; and his head was so well a stored magazine, that nothing could be proposed which he was not master of, and was readily furnished to entertain any one on. This is an excellency indeed, and a great one too, to have a real and true knowledge in all or most of the objects of contemplation. But it is what the mind of one and the same man can hardly attain unto; and the instances are so few of those who have in any measure approached towards it, that I know not whether they are to be proposed as examples in the ordinary conduct of the understanding. For a man to understand fully the business of his particular calling in the commonwealth, and of religion, which is his calling as he is a man in the world, is usually enough to take up his whole time; and there are few that inform themselves in these, which is every man's proper and peculiar business, so to the bottom as they should do. But though this be so, and there are very few men that extend their thoughts towards universal knowledge; yet I do not doubt but if the right way were taken, and the methods of enquiry were ordered as they should be, men of little business and great leisure might go a great deal farther in it than is usually done.—To return to the business in hand, the end and use of a little insight in those parts of knowledge, which are not a man's proper business, is to accustom our minds to all sorts of ideas, and the proper ways of examining their habitudes and relations. *This gives the mind* a freedom, and the

exercising the understanding in the several ways of enquiry and reasoning, which the most skilful have made use of, teaches the mind sagacity and wariness, and a suppleness to apply itself more closely and dexterously to the bents and turns of the matter in all its researches. Besides this universal taste of all the sciences, with an indifferency before the mind is possessed with any one in particular, and grown into love and admiration of what is made its darling, will prevent another evil very commonly to be observed in those who have from the beginning been seasoned only by one part of knowledge. Let a man be given up to the contemplation of one sort of knowledge, and that will become every thing. The mind will take such a tincture from a familiarity with that object, that every thing else, how remote soever, will be brought under the same view. A metaphysician will bring ploughing and gardening immediately to abstract notions, the history of nature shall signify nothing to him. An alchymist, on the contrary, shall reduce divinity to the maxims of his laboratory, explain morality by *sal*, *sulpher*, and *mercury*, and allegorize the scripture itself, and the sacred mysteries thereof, into the philosopher's stone. And I heard once a man, who had a more than ordinary excellency in music, seriously accommodate Moses' seven days of the first week to the notes of music, as if from thence had been taken the measure and method of the creation. It is of no small consequence to keep the mind from such a possession, which I think is best done by giving it a fair *and equal* view of the whole intellectual world, *wherein it* may see the order, rank, and beauty of

the whole, and give a just allowance to the distinct provinces of the several sciences in the due order and usefulness of each of them.

If this be that which old men will not think necessary, nor be easily brought to; it is fit at least that it should be practised in the breeding of the young. The business of education, as I have already observed, is not, as I think, to make them perfect in any one of the sciences, but so to open and dispose their minds as may best make them capable of any, when they shall apply themselves to it. If men are for a long time accustomed only to one sort or method of thoughts, their minds grow stiff in it, and do not readily turn to another. It is therefore to give them their freedom, that I think they should be made look into all sorts of knowledge, and exercise their understandings in so wide a variety and stock of knowledge. But I do not purpose it as a variety and stock of knowledge, but a variety and freedom of thinking, as an increase of the powers and activity of the mind, not as an enlargement of its possessions.

SECT. XX.

READING.

THIS is that which I think great readers are apt to be mistaken in. Those who have read of every thing, are taught to understand every thing too; but it is not always so. Reading furnishes the mind only with materials of knowledge, it is thinking makes what we read ours. We are of the ruminating kind, *and it is not* enough to cram ourselves

with a great load of collections; unless we chew them over again, they will not give us strength and nourishment. There are indeed in some writers visible instances of deep thought, close and acute reasoning, and ideas well pursued. The light these would give, would be of great use, if their readers would observe and imitate them; all the rest at best are but particulars fit to be turned into knowledge; but that can be done only by our own meditation, and examining the reach, force, and coherence of what is said; and then as far as we apprehend aud see the connection of ideas, so far it is ours; without that it is but so much loose matter floating in our brain. The memory may be stored, but the judgment is little better, and the stock of knowledge not increased by being able to repeat what others have said, or produce the arguments we have found in them. Such a knowledge as this is but knowledge by hearsay, and the ostentation of it is at best but talking by rote, and very often upon weak and wrong principles. For all that is to be found in books, is not built upon true foundations, nor always rightly deduced from the principles it is pretended to be built on. Such an examen as is requisite to discover that, every reader's mind is not forward to make; especially in those who have given themselves up to a party, and only hunt for what they can scrape together, that may favour and support the tenents of it. Such men wilfully exclude themselves from truth, and from all true benefit to be received by reading. Others of more indifferency, often want attention and industry. The mind is backward in itself to be at the pains to trace every argument to its original, and to

see upon what basis it stands, and how firmly; but yet it is this that gives so much the advantage to one man more than another in reading. The mind should, by severe rules, be tied down to this, at first, uneasy task; use and exercise will give it facility. So that those who are accustomed to it, readily, as it were with one cast of the eye, take a view of the argument, and presently, in most cases, see where it bottoms. Those who have got this faculty, one may say, have got the true key of books, and the clue to lead them through the mizmaze of variety of opinions and authors to truth and certainty. This young beginners should be entered in, and shewed the use of, that they might profit by their reading. Those who are strangers to it, will be apt to think it too great a clog in the way of men's studies, and they will suspect they shall make but small progress, if, in the books they read, they must stand to examine and unravel every argument, and follow it step by step up to its original.

I answer, this is a good objection, and ought to weigh with those whose reading is designed for much talk and little knowledge, and I have nothing to say to it. But I am here enquiring into the conduct of the understanding in its progress towards knowledge; and to those who aim at that, I may say, that he who fair and softly goes steadily forward in a course that points right, will sooner be at his journey's end, than he that runs after every one he meets, though he gallop all day full speed.

To which let me add, that this way of thinking on, and profiting by what we read, will be a clog and *rub to any one only* in the beginning; when

custom and exercise has made it familiar, it will be dispatched in most occasions, without resting or interruption in the course of our reading. The motions and views of a mind exercised that way, are wonderfully quick; and a man used to such sort of reflections, sees as much at one glimpse, as would require a long discourse to lay before another, and make out an entire and gradual deduction. Besides, that when the first difficulties are over, the delight and sensible advantages it brings, mightily encourages and enlivens the mind in reading, which, without this, is very improperly called study.

SECT. XXI.

INTERMEDIATE PRINCIPLES.

As an help to this, I think it may be proposed, that for the saving the long progression of the thoughts to remote and first principles in every case, the mind should provide itself several stages; that is to say, intermediate principles, which it might have recourse to in the examining those positions that come in its way. These, though they are not self-evident principles, yet, if they have been made out from them by a wary and unquestionable deduction, may be depended on as certain and infallible truths, and serve as unquestionable truths to prove other points depending on them, by a nearer and shorter view than remote and general maxims. These may serve as land-marks to *shew* what lies in the direct way of truth, or is *quite* beside it. And thus mathematicians do,

do not in every new problem run it back to
irst axioms, through all the whole train of in-
ediate propositions. Certain theorems that
have settled to themselves upon sure demon-
on, serve to resolve to them multitudes of pro-
ions which depend on them, and are as firmly
: out from thence, as if the mind went afresh
every link of the whole chain, that tie them
rst self-evident principles. Only in other
ces great care is to be taken that they esta-
those intermediate principles, with as much
on, exactness, and indifferency, as mathema-
is use in the settling any of their great theo-
. When this is not done, but men take up the
iples in this or that science upon credit, incli-
n, interest, &c. in haste, without due exami-
n, and most unquestionable proof, they lay a
for themselves, and as much as in them lies,
vate their understandings to mistake, fals-
, and error.

SECT. XXII.

PARTIALITY.

s there is a partiality to opinions, which, as we
already observed, is apt to mislead the under-
ling; so there is often a partiality to studies,
h is prejudicial also to knowledge and im-
ement. Those sciences which men are par-
rly versed in, they are apt to value and ex-
s if that part of knowledge which every one
acquainted himself with, were that alone
h *was worth the having*, and all the rest were

idle and empty amusements, comparatively of no use or importance. This is the effect of ignorance, and not knowledge; the being vainly puffed up with a flatulency, arising from a weak and narrow comprehension. It is not amiss that every one should relish the science that he has made his peculiar study; a view of its beauties, and a sense of its usefulness, carries a man on with the more delight and warmth, in the pursuit and improvement of it. But the contempt of all other knowledge, as if it were nothing in comparison of law or physic, of astronomy or chemistry, or perhaps some yet meaner part of knowledge wherein I have got some smattering, or am somewhat advanced, is not only the mark of a vain or little mind, but does this prejudice in the conduct of the understanding, that it coops it up within narrow bounds, and hinders it from looking abroad into other provinces of the intellectual world, more beautiful possibly, and more fruitful than that which it had until then laboured in; wherein it might find, besides new knowledge, ways or hints whereby it might be enabled the better to cultivate its own.

SECT. XXIII.

THEOLOGY.

THERE is indeed one science, (as they are now distinguished) incomparably above all the rest, where it is not by corruption narrowed into a trade or faction, for mean or ill ends, and secular interests; I mean theology, which containing the

owledge of God and his creatures, our duty to
m and his fellow-creatures, and a view of our
esent and future state, is the comprehension of
other knowledge directed to its true end: *i. e.*
e honour and veneration of the Creator, and the
ppiness of mankind. This is that noble study
ich is every man's duty, and every one that can
called a rational creature is capable of. The
rks of nature, and the words of revelation, dis-
ay it to mankind in characters so large and visi-
e, that those who are not quite blind, may in
em read, and see the first principles and most
cessary parts of it; and from thence, as they
ve time and industry, may be enabled to go on
the more abstruse parts of it, and penetrate into
ose infinite depths filled with the treasures of
isdom and knowledge. This is that science
hich would truly enlarge men's minds, were it
idied, or permitted to be studied every where
ith that freedom, love of truth, and charity which
teaches, and were not made, contrary to its na-
re, the occasion of strife, faction, malignity, and
rrow impositions. I shall say no more here of
is, but that it is undoubtedly a wrong use of my
derstanding, to make it the rule and measure of
other man's; a use which it is neither fit for,
r capable of.

SECT. XXIV.

PARTIALITY.

THIS partiality, where it is not permitted an
thority to *render all other* studies insignificant or

contemptible, is often indulged so far as to be relied upon, and made use of in other parts of knowledge, to which it does not at all belong, and wherewith it has no manner of affinity. Some men have so used their heads to mathematical figures, that giving a preference to the methods of that science, they introduce lines and diagrams into their study of divinity, or politic enquiries, as if nothing could be known without them; and others accustomed to retired speculations, run natural philosophy into metaphysical notions, and the abstract generalities of logic; and how often may one meet with religion and morality treated of in the terms of the laboratory, and thought to be improved by the methods and notions of chemistry. But he that will take care of the conduct of his understanding, to direct it right to the knowledge of things, must avoid these undue mixtures, and not by a fondness for what he has found useful and necessary in one, transfer it to another science, where it serves only to perplex and confound the understanding. It is a certain truth, that *res nolunt male administrari*, it is no less certain, *res nolunt male intelligi*. Things themselves are to be considered as they are in themselves, and then they will shew us in what way they are to be understood. For to have right conceptions about them, we must bring our understandings to the inflexible natures, and unalterable relations of things, and not endeavour to bring things to any pre-conceived notions of our own.

There is another partiality very commonly observable in men of study, no less prejudicial nor ridiculous than the former; and that is a fantastical

and wild attributing all knowledge to the ancients alone, or to the moderns. This raving upon antiquity in matter of poetry, Horace has wittily described and exposed in one of his Satires. The same sort of madness may be found in reference to all the other sciences. Some will not admit an opinion not authorized by men of old, who were then all giants in knowledge. Nothing is to be put into the treasury of truth or knowledge, which has not the stamp of Greece or Rome upon it: and since their days will scarce allow that men have been able to see, think, or write. Others, with a like extravagancy, contemn all that the ancients have left us, and being taken with the modern inventions and discoveries, lay by all that went before, as if whatever is called old must have the decay of time upon it, and truth too were liable to mould and rottenness. Men, I think, have been much the same for natural endowments in all times. Fashion, discipline, and education, have put eminent differences in the ages of several countries, and made one generation much differ from another in arts and sciences. But truth is always the same; time alters it not, nor is it the better or worse for being of ancient or modern tradition. Many were eminent in former ages of the world for their discovery and delivery of it; but though the knowledge they have left us be worth our study, yet they exhausted not all its treasure; they left a great deal for the industry and sagacity of after-ages, and so shall we. That was once new to them which any one now receives with veneration for its antiquity; nor was it the worse for appearing as a novelty; and that

which is now embraced for its newness, will, to posterity, be old, but not thereby be less true or less genuine. There is no occasion on this account to oppose the ancients and the moderns to one another, or to be squeamish on either side. He that wisely conducts his mind in the pursuit of knowledge, will gather what lights, and get what helps he can from either of them, from whom they are best to be had, without adoring the errors, or rejecting the truths which he may find mingled in them.

Another partiality may be observed, in some to vulgar, in others to heterodox tenets: Some are apt to conclude, that what is the common opinion cannot but be true; so many men's eyes they think cannot but see right; so many men's understandings of all sorts cannot be deceived; and therefore will not venture to look beyond the received notions of the place and age, nor have so presumptuous a thought as to be wiser than their neighbours. They are content to go with the crowd, and go so easily, which they think is going right, or at least serves them as well. But however "vox populi vox Dei" has prevailed as a maxim, yet I do not remember wherever God delivered his oracles by the multitude, or nature truths by the herd. On the other side, some fly all common opinions as either false or frivolous. The title of many-headed beast is a sufficient reason to them to conclude, that no truths of weigh, or consequence can be lodged there. Vulgar opinions are suited to vulgar capacities, and adapted to the ends of those that govern. He that will know the truth of things, must *leave the* common and beaten track, which none

but weak and servile minds are satisfied to trudge along continually in. Such nice palates relish nothing but strange notions quite out of the way; whatever is commonly received, has the mark of the beast on it, and they think it a lessening to them to harken to it, or receive it; their mind runs only after paradoxes; these they seek, these they embrace, these alone they vent, and so as they think, distinguish themselves from the vulgar. But common or uncommon are not the marks to distinguish truth or falshood, and therefore should not be any bias to us in our enquiries. We should not judge of things by men's opinions, but of opinions by things. The multitude reason but ill, and therefore may be well suspected, and cannot be relied on, nor should be followed as a sure guide; but philosophers who have quitted the orthodoxy of the community, and the popular doctrines of their countries, have fallen into just as extravagant and as absurd opinions as ever common reception countenanced. It would be madness to refuse to breathe common air, or quench one's thirst with water because the rabble use them to these purposes; and if there are conveniences of life which common use reaches not, it is not reason to reject them, because they are not grown into the ordinary fashion of the country, and every villager doth not know them.

Truth, whether in or out of fashion, is the measure of knowledge, and the business of the understanding; whatsoever is besides that, however authorized by consent, or recommended by rarity, is nothing but ignorance, or something worse.

Another sort of partiality there is, whereby men impose *upon themselves*, and by it make their read-

ing little useful to themselves; I mean the making use of the opinions of writers, and laying stress upon their authorities, wherever they find them favour their own opinions.

There is nothing almost has done more harm to men dedicated to letters, than giving the name of study to reading, and making a man of great reading to be the same with a man of great knowledge, or at least to be a title of honour. All that can be recorded in writing, are only facts or reasonings. Facts are of three sorts:

1. Merely of natural agents, observable in the ordinary operations of bodies one upon another, whether in the visible course of things left to themselves, or in experiments made by men applying agents and patients to one another, after a peculiar and artificial manner.

2. Of voluntary agents, more especially the actions of men in society, which makes civil and moral history.

3. Of opinions.

In these three consists, as it seems to me, that which commonly has the name of learning; to which perhaps some may add a distinct head of critical writings, which indeed at bottom is nothing but matter of fact, and resolves itself into this, that such a man, or set of men, used such a word or phrase is such a sense, *i. e.* that they made such sounds the marks of such ideas.

Under reasonings I comprehend all the discoveries of general truths made by human reason, whether found by intuition, demonstration, or *probable* deductions. And this is that which is, if not *alone knowledge*, (because the truth or probability

f particular propositions may be known too,) yet t is, as may be supposed, most properly the business f those who pretend to improve their understand- ngs, and make themselves knowing by reading.

Books and reading are looked upon to be the reat helps of the understanding, and instruments f knowledge, as it must be allowed that they are; nd yet I beg leave to question whether these do ot prove an hindrance to many, and keep several ookish men from attaining to solid and true know- edge. This, I think, I may be permitted to say, hat there is no part wherein the understanding eeds a more careful and wary conduct, than in the se of books: without which they will prove ra- her innocent amusements than profitable employ- ents of our time, and bring but small additions to ur knowledge.

There is not seldom to be found even amongst hose who aim at knowledge, who with an un- earied industry, employ their whole time in books, ho scarce allow themselves time to eat or sleep, ut read, and read, and read on, but yet make no reat advances in real knowledge, though there be o defect in their intellectual faculties, to which eir little progress can be imputed. The mistake ere is, that it is usually supposed, that by reading, e author's knowledge is transfused into the ader's understanding; and so it is, but not by bare ading, but by reading and understanding what he rit. Whereby I mean, not barely comprehending hat is affirmed or denied in each proposition, ough that great readers do not think themselves ncerned precisely to do,) but to see and follow e *train of his reasonings*, observe the strength and

clearness of their connexion, and examine upon what they bottom. Without this a man may read the discourses of a very rational author, writ in a language and in propositions that he very well understands, and yet acquire not one jot of his knowledge; which consisting only in the perceived, certain, or probable connection of the ideas made use of in his reasonings, the reader's knowledge is no farther increased, than he perceives that, so much as he sees of this connection, so much he knows of the truth or probability of that author's opinions.

All that he relies on without this perception, he takes upon trust upon the author's credit, without any knowledge of it at all. This makes me not at all wonder to see some men so abound in citations, and build so much upon authorities, it being the sole foundation on which they bottom most of their own tenets; so that in effect they have but a second hand or implicit knowledge, i. e. are in the right if such an one, from whom they borrowed it, were in the right in that opinion which they took from him, which indeed is no knowledge at all. Writers of this or former ages, may be good witnesses of matters of fact which they deliver, which we may do well to take upon their authority; but their credit can go no farther than this, it cannot at all effect the truth and falsehood of opinions, which have another sort of trial by reason, and proof which they themselves make use of to make themselves knowing, and so must others too that will partake in their knowledge. Indeed it is an advantage that they have been at the pains to find *out the proofs*, and lay them in that order that may *shew the* truth or probability of their conclusions;

and for this we owe them great acknowledgments, for saving us the pains in searching out those proofs which they have collected for us, and which possibly, after all our pains, we might not have found, nor been able to have set them in so good a light as that which they left them us in. Upon this account we are mightily beholden to judicious writers of all ages for those discoveries and discourses they have left behind them for our instruction, if we know how to make a right use of them; which is not to run them over in an hasty perusal, and perhaps lodge their opinions, or some remarkable passages in our memories, but to enter into their reasonings, examine their proofs, and then judge of the truth or falsehood, probability or improbability of what they advance; not by any opinion we have entertained of the author, but by the evidence he produces, and the conviction he affords us, drawn from things themselves. Knowing is seeing, and if it be so, it is madness to persuade ourselves that we do so by another man's eys, let him use never so many words to tell, that what he asserts is very visible. Until we ourselves see it with our own eyes, and perceive it by our own understandings, we are as much in the dark, and as void of knowledge as before, let us believe any learned author as much as we will.

Euclid and Archimedes are allowed to be knowing, and to have demonstrated what they say; and yet whoever shall read over their writings without perceiving the connection of their proofs, and seeing what they shew, though he may understand all their words, yet he is not the more knowing. *He may* believe indeed, but does not

know what they say, and so is not advanced one jot in mathematical knowledge by all his reading of those approved mathematicians.

SECT. XXV.

HASTE.

THE eagerness and strong bent of the mind after knowledge, if not warily regulated, is often an hindrance to it. It still presses into farther discoveries and new objects, and catches at the variety of knowledge, and therefore often stays not long enough on what is before it, to look into it as it should, for haste to pursue what is yet out of sight. He that rides post through a country, may be able, from the transient view, to tell how in general the parts lie, and may be able to give some loose description of here a mountain, and there a plain, here a morass, and there a river; woodland in one part and savannahs in another. Such superficial ideas and observations as these he may collect in galloping over it. But the more useful observations of the soil, plants, animals, and inhabitants, with their several sorts and properties, must necessarily escape him; and it is seldom men ever discover the rich mines, without some digging. Nature commonly lodges her treasure and jewels in rocky ground. If the matter be knotty, and the sense lies deep, the mind must stop and buckle to it, and stick upon it with labour and thought, and close contemplation; and not leave it until it has *mastered* the difficulty, and got possession of truth. *But here* care must be taken to avoid the other ex-

treme: a man must not stick at every useless nicety, and expect mysteries of science in every trivial question or scruple that he may raise. He that will stand to pick up and examine every pebble that comes in his way, is as unlikely to return enriched and laden with jewels, as the other that travelled full speed. Truths are not the better nor the worse for their obviousness or difficulty, but their value is to be measured by their usefulness and tendency. Insignificant observations should not take up any of our minutes, and those that enlarge our view, and give light towards farther and useful discoveries, should not be neglected, though they stop our course, and spend some of our time in a fixed attention.

There is another haste that does often, and will mislead the mind, if it be left to itself and its own conduct. The understanding is naturally forward, not only to learn its knowledge by variety, (which makes it skip over one to get speedily to another part of knowledge) but also eager to enlarge its views by running too fast into general observations and conclusions, without a due examination of particulars enough whereon to found those general axioms. This seems to enlarge their stock, but it is of fancies, not realities; such theories built upon narrow foundations stand but weakly, and if they fall not of themselves, are at least very hardly to be supported against the assaults of opposition. And thus man being too hasty to erect to themselves general notions and ill-grounded theories, find themselves deceived in their stock of knowledge, when they come to examine their hastily *assumed maxims* themselves, or to have them

attacked by others. General observations drawn from particulars are the jewels of knowledge, comprehending great store in a little room; but they are therefore to be made with the greater care and caution, lest if we take counterfeit for true, our loss and shame be the greater, when our stock comes to a severe scrutiny. One or two particulars may suggest hints of enquiry, and they do well who take those hints; but if they turn them into conclusions, and make them presently general rules, they are forward indeed; but it is only to impose on themselves by propositions assumed from truths without sufficient warrant. To make such observations, is, as has been already remarked, to make the head a magazine of materials, which can hardly be called knowledge, or at least it is but like a collection of lumber not reduced to use or order; and he that makes every thing an observation, has the same useless plenty, and much more falshood mixed with it. The extremes on both sides are to be avoided, and he will be able to give the best account of his studies, who keeps his understanding in the right mean between them.

SECT. XXVI.

ANTICIPATION.

WHETHER it be a love of that which brings the first light and information to their minds, and want of vigour and industry to enquire, or else that men content themselves with any appearance of knowledge, right or wrong, which, when they have once got, they will hold fast. This is visible, that many

men give themselves up to the first anticipations of their minds, and are very tenacious of the opinions that first possess them; they are often as fond of their first conceptions as of their first-born, and will by no means recede from the judgment they have once made, or any conjecture or conceit which they have once entertained. This is a fault in the conduct of the understanding, since this firmness or rather stiffness of the mind is not from an adherence to truth, but a submission to prejudice. It is an unreasonable homage paid to prepossession, whereby we shew a reverence not to (what we pretend to seek) truth; but what by hap-hazard we chance to light on, be it what it will. This is visibly a preposterous use of our faculties, and is a downright prostituting of the mind to resign it thus, and put it under the power of the first comer. This can never be allowed, or ought to be followed as a right way to knowledge, until the understanding, (whose business it is to conform itself to what it finds on the objects without) can by its own opiniatrety change that, and make the unalterable nature of things comply with its own hasty determinations, which will never be. Whatever we fancy, things keep their course; and their habitudes, correspondencies, and relations, keep the same to one another.

SECT. XXVII.

RESIGNATION.

CONTRARY to these, but by a like dangerous excess on the other side, are those who always re-

sign their judgment to the last man they heard or read. Truth never sinks into these men's minds, nor gives any tincture to them, but, cameleon like, they take the colour of what is laid before them, and as soon lose and resign it to the next that happens to come in their way. The order wherein opinions are proposed or received by us, is no rule of their rectitude, nor ought to be a cause of their preference. First or last in this case, is the effect of chance, and not the measure of truth or falshood. This every one must confess, and therefore should, in the pursuit of truth, keep his mind free from the influence of any such accidents. A man may as reasonably draw cuts for his tenets, regulate his persuasion by the cast of a die, as take it up for its novelty, or retain it because it had his first assent, and he was never of another mind. Well-weighed reasons are to determine the judgment; those the mind should be always ready to hearken and submit to, and by their testimony and suffrage, entertain or reject any tenet indifferently, whether it be a perfect stranger, or an old acquaintance.

SECT. XXVIII.

PRACTICE.

THOUGH the faculties of the mind are improved by exercise, yet they must not be put to a stress beyond their strength. "Quid valeant humeri, quid ferre recusent," must be made the measure of every one's understanding, who has a desire not only to perform well, but to keep up the vigour of his *faculties, and* not to balk his understanding by what-

is too hard for it. The mind by being engaged in a task beyond its strength, like the body strained by lifting at a weight too heavy, has often its force broken, and thereby gets an unaptness or an aversion to any vigorous attempt ever after. A sinew cracked seldom recovers its former strength, or at least the tenderness of the sprain remains a good while after, and the memory of it longer, and leaves a lasting caution in the man, not to put the part quickly again to any robust employment. So it fares in the mind; once jaded by an attempt above its power, it either is disabled for the future, or else checks at any vigorous undertaking ever after, at least is very hardly brought to exert its force again on any subject that requires thought and meditation. The understanding should be brought to the difficult and knotty parts of knowledge, that try the strength of thought, and a full bent of the mind by insensible degrees; and in such a gradual proceeding, nothing is too hard for it. Nor let it be objected, that such a slow progress will never reach the extent of some sciences. It is not to be imagined how far constancy will carry a man; however, it is better walking slowly in a rugged way, than to break a leg and be a cripple. He that begins with the calf may carry the ox; but he that will at first go to take up an ox, may so disable himself, as not to be able to lift a calf after that. When the mind, by insensible degrees, has brought itself to attention and close thinking, it will be able to cope with difficulties, and master them without any prejudice to itself, and then it may go on roundly. Every abstruse problem, every intricate question will not baffle, discourage, or break it.

But though putting the mind unprepared upon an unusual stress, that may discourage or damp it for the future, ought to be avoided; yet this must not run it, by an over great shyness of difficulties, into a lazy sauntering, about ordinary and obvious things, that demand no thought or application. This debases and enervates the understanding, makes it weak and unfit for labour. This is a sort of hovering about the surface of things, without any insight into them, or penetration; and when the mind has been once habituated to this lazy recumbency and satisfaction, on the obvious surface of things, it is in danger to rest satisfied there, and go no deeper, since it cannot do it without pains and digging. He that has for some time accustomed himself to take up with what easily offers itself at first view, has reason to fear he shall never reconcile himself to the fatigue of turning and tumbling things in his mind, to discover their more retired and more valuable secrets.

It is not strange that methods of learning, which scholars have been accustomed to in their beginning and entrance upon the sciences, should influence them all their lives, and be settled in their minds by an over-ruling reverence, especially if they be such as universal use has established. Learners must at first be believers, and their master's rules having been once made axioms to them, it is no wonder they should keep that dignity, and by the authority they have once got, mislead those who think it sufficient to excuse them, if they go out of their way in a well beaten track.

SECT. XXIX.

WORDS.

I HAVE copiously enough spoken of the abuse of words in another place, and therefore shall upon this reflection, that the sciences are full of them, warn those that would conduct their understandings right, not to take any term, howsoever authorised by the language of the schools, to stand for any thing, until they have an idea of it. A word may be of frequent use and great credit with several authors, and be by them made use of, as if it stood for some real being; but yet, if he that reads cannot frame any distinct idea of that being, it is certain to him a mere empty sound without a meaning, and he learns no more by all that is said of it, or attributed to it, than if it were affirmed only of that bare empty sound. They who would advance in knowledge, and not deceive and swell themselves with a little articulated air, should lay down this as a fundamental rule, not to take words for things, nor suppose that names in books signify real entities in nature, until they can frame clear and distinct ideas of those entities. It will not perhaps be allowed, if I should set down *substantial forms* and *intentional species*, as such that may justly be suspected to be of this kind of insignificant terms. But this I am sure, to one that can form no determined ideas of what they stand for, they signify nothing at all; and all that he thinks he knows about them, is to him so much knowledge about nothing, and amounts at most but to a learned ignorance. It is *not without all* reason supposed, that there are

many such empty terms to be found in some learned writers, to which they had recourse to etch out their systems, where their understandings could not furnish them with conceptions from things. But yet I believe the supposing of some realities in nature, answering those and the like words, have much perplexed some, and quite misled others in the study of nature. That which in any discourse signifies, *I know not what*, should be considered *I know not when*. Where men have any conceptions, they can, if they are never so abstruse or abstracted, explain them, and the terms they use for them. For our conceptions being nothing but ideas, which are all made up of simple ones. If they cannot give us the ideas their words stand for, it is plain they have none. To what purpose can it be to hunt after his conceptions, who has none, or none distinct? He that knew not what he himself meant by a learned term, cannot make us know any thing by his use of it, let us beat our heads about it never so long. Whether we are able to comprehend all the operations of nature and the manners of them, it matters not to enquire; but this is certain, that we can comprehend no more of them than we can distinctly conceive; and therefore to obtrude terms where we have no distinct conceptions, as if they did contain or rather conceal something, is but an artifice of learned vanity, to cover a defect in an hypothesis, or our understandings. Words are not made to conceal, but to declare and shew something; where they are by those who pretend to instruct, otherwise used, they conceal *indeed something*; but that which they conceal is *nothing*, but the ignorance, error, or sophistry of

the talker, for there is in truth nothing else under them.

SECT. XXX.

WANDERING.

THAT there is a constant succession and flux of ideas in our minds, I have observed in the former part of this essay, and every one may take notice of it in himself. This I suppose may deserve some part of our care in the conduct of our understandings; and I think it may be of great advantage, if we can by use get that power over our minds, as to be able to direct that train of ideas, that so since there will new ones pepetually come into our thoughts by a constant succession, we may be able by choice so to direct them, that none may come in view, but such as are pertinent to our present enquiry, and in such order as may be most useful to the discovery we are upon; or at least, if some foreign and unsought ideas will offer themselves, that yet we might be able to reject them, and keep them from taking off our minds from its present pursuit, and hinder them from running away with our thoughts quite from the subject in hand. This is not, I suspect, so easy to be done as perhaps may be imagined; and yet, for ought I know, this may be, if not the chief, yet one of the great differences that carry some men in their reasoning so far beyond others, where they seem to be naturally of equal parts. A proper and effectual remedy for this wandering of thoughts I would be gald to find. He that shall propose such an one, would do great service *to the studious* and contemplative part of

mankind, and perhaps help unthinking men to become thinking. I must acknowledge, that hitherto, I have discovered no other way to keep our thoughts close to their business, but the endeavouring, as much as we can, and by frequent attention and application, getting the habit of attention and application. He that will observe children, will find, that even when they endeavour their uttermost, they cannot keep their minds from straggling. The way to cure it, I am satisfied, is not angry chiding or beating, for that presently fills their heads with all the ideas that fear, dread, or confusion can offer to them. To bring back gently their wandering thoughts, by leading them into the path, and going before them in the train they should pursue, without any rebuke, or so much as taking notice, (where it can be avoided) of their roving, I suppose, would sooner reconcile and inure them to attention, than all those rougher methods, which more distract their thought, and hindering the application they would promote, introduce a contrary habit.

SECT. XXXI.

DISTINCTIONS.

DISTINCTION and division are (if I mistake not the import of the words) very different things; the one being the perception of a difference that nature has placed in things, the other, our making a division where there is yet none, at least, if I may *be permitted* to consider them in this sense, I think *I may say* of them, that one of them is the most

necessary and conducive to true knowledge that can be; the other, when too much made use of, serves only to puzzle and confound the understanding. To observe every the least difference that is in things, argues a quick and clear sight, and this keeps the understanding steady and right in its way to knowledge. But though it be useful to discern every variety is to be found in nature, yet it is not convenient to consider every difference that is in things, and divide them into distinct classes under every such difference. This will run us, if followed, into particulars, (for every individual has something that differences it from another) and we shall be able to establish no general truths, or else at least shall be apt to perplex the mind about them. The collection of several things into several classes, gives the mind more general and larger views; but we must take care to unite them only in that: and so far as they do agree, for so far they may be united under the consideration. For entity itself, that comprehends all things, as general as it is, may afford us clear and rational conceptions. If we would well weigh and keep in our minds what it is we are considering, that would best instruct us when we should or should not branch into farther distinctions, which are to be taken only from a due contemplation of things; to which there is nothing more opposite than the art of verbal distinctions, made at pleasure, in learned and arbitrarily invented terms, to be applied at a venture, without comprehending or conveying any distinct notions, and so altogether fitted to artificial talk, or empty noise in dispute, without any clearing of difficulties, or advance in know-

ledge. Whatsoever subject we examine and would get knowledge in, we should, I think, make as general and as large as it will bear; nor can there be any danger of this, if the idea of it be settled and determined: for if that be so, we shall easily distinguish it from any other idea, though comprehended under the same name. For it is to fence against the entanglements of equivocal words, and the great art of sophistry which lies in them, that distinctions have been multiplied, and their use thought so necessary. But had every distinct abstract idea a distinct known name, there would be little need of these multiplied scholastic distinctions, though there would be nevertheless as much need still of the mind's observing the differences that are in things, and descriminating them thereby one from another. It is not therefore the right way to knowledge, to hunt after, and fill the head with abundance of artificial and scholastic distinctions, wherewith learned men's writings are often filled; and we sometimes find what they treat of so divided and subdivided, that the mind of the most attentive reader loses the sight of it, as it is more than probable the writer himself did; for in things crumbled into dust, it is in vain to affect or pretend order, or expect clearness. To avoid confusion by too few or too many divisions, is a great skill in thinking as well as writing, which is but the copying our thoughts; but what are the boundaries of the mean between the two vicious excesses on both hands, I think is hard to set down in words: clear and distinct ideas is all that I yet *know* able to regulate it. But as to verbal distinctions received and applied to common terms,

i. e. equivocal words, they are more properly, I think, the business of criticisms and dictionaries than of real knowledge and philosophy, since they, for the most part, explain the meaning of words, and give us their several significations. The dexterous management of terms, and being able to *fend* and *prove* with them, I know has and does pass in the world for a great part of learning; but it is learning distinct from knowledge, for knowledge consists only in perceiving the habitudes and relations of ideas one to another, which is done without words; the intervention of a sound helps nothing to it. And hence we see that there is least use of distinctions where there is most knowledge; I mean in mathematics, where men have determined ideas with known names to them; and so there being no room for equivocations, there is no need of distinctions. In arguing, the opponent uses as comprehensive and equivocal terms as he can, to involve his adversary in the doubtfulness of his expressions: this is expected, and therefore the answerer on his side makes it his play to distinguish as much as he can, and thinks he can never do it too much; nor can he indeed in that way wherein victory may be had without truth and without knowledge. This seems to me to be the art of disputing. Use your words as captiously as you can in your arguing on one side, and apply distinctions as much as you can on the other side, to every term, to nonplus your opponent; so that in this sort of scholarship, there being no bounds set to distinguishing, some men have thought all acuteness to have lain in it; and therefore in all *they have read or thought on*, their great business

has been to amuse themselves with distinctions, and multiply to themselves divisions, at least, more than the nature of the thing required. There seems to me, as I said, to be no other rule for this, but a due and right consideration of things as they are in themselves. He that has settled in his mind determined ideas, with names affixed to them, will be able both to discern their differences one from another, which is really distinguishing; and where the penury of words affords not terms answering every distinct idea, will be able to apply proper distinguishing terms to the comprehensive and equivocal names he is forced to make use of. This is all the need I know of distinguishing terms; and in such verbal distinctions, each term of the distinction joined to that whose signification is distinguished, is but a new distinct name for a distinct idea. Where they are so, and men have clear and distinct conceptions that answer their verbal distinctions, they are right, and are pertinent as far as they serve to clear any thing in the subject under consideration. And this is that which seems to me the proper and only measure of distinctions and divisions; which he that will conduct his understanding right, must not look for in the acuteness of invention, nor the authority of writers, but will find only in the consideration of things themselves, whether they are led into it by their own meditations, or the information of books.

An aptness to jumble things together, wherein can be found any likeness, is a fault in the understanding on the other side, which will not fail to *mislead it,* and by thus lumping of things, hinder *the mind from* distinct and accurate conceptions of *them.*

SECT. XXXII.

SIMILIES.

To which let me here add another near of kin to this, at least in name, and that is letting the mind upon the suggestion of any new notion, run immediately after similies to make it the clearer to itself; which, though it may be a good way and useful in the explaining our thoughts to others, yet it is by no means a right method to settle true notions of any thing in ourselves, because similies always fail in some part, and come short of that exactness which our conceptions should have to things, if we would think aright. This indeed makes men plausible talkers; for those are always most acceptable in discourse who have the way to let in their thoughts into other men's minds with the greatest ease and facility, whether those thoughts are well formed and correspond with things, matters not; few men care to be instructed but at an easy rate. They who in their discourse strike the fancy, and take the hearers' conceptions along with them as fast as their words flow, are the applauded talkers, and go for the only men of clear thoughts. Nothing contributes so much to this as similies, whereby men think they themselves understand better, because they are the better understood. But it is one thing to think right, and another thing to know the right way to lay our thoughts before others with advantage and clearness, be they right or wrong. Well chosen similies, metaphors, and allegories, with method and order,

do this the best of any thing, because being taken from objects already known and familiar to the understanding, they are conceived as fast as spoken; and the correspondence being concluded, the thing they are brought to explain and elucidate is thought to be understood too. Thus fancy passes for knowledge, and what is prettily said is mistaken for solid. I say not this to decry metaphor, or with design to take away that ornament of speech; my business here is not with rhetoricians and orators, but with philosophers and lovers of truth; to whom I would beg leave to give this one rule whereby to try whether, in the application of their thoughts to any thing for the improvement of their knowledge, they do in truth comprehend the matter before them really such as it is in itself. The way to discover this is to observe, whether in the laying it before themselves or others, they make use only of borrowed representations, and ideas foreign to the thing, which are applied to it by way of accommodation, as bearing some proportion or imagined likeness to the subject under consideration. Figured and metaphorical expressions do well to illustrate more abstruse and unfamiliar ideas, which the mind is not yet thoroughly accustomed to, but then they must be made use of to illustrate ideas that we already have, not to paint to us those which we yet have not. Such borrowed and illusive ideas may follow real and solid truth, to set it off when found, but must by no means be set in its place, and taken for it. If all our search as yet reached no farther than simile and metaphor, we may assure ourselves we rather fancy than know, and are not yet pe-

netrated into the inside and reality of the thing, be it what it will, but content ourselves with what our imaginations, not things themselves, furnish us with.

SECT. XXXIII.

ASSENT.

In the whole conduct of the understanding, there is nothing of more moment than to know when and where, and how far to give assent, and possibly there is nothing harder. It is very easily said, and nobody questions it, that giving and withholding our assent, and the degrees of it, should be regulated by the evidence which things carry with them; and yet we see men are not the better for this rule; some firmly embrace doctrines upon slight grounds, some upon no grounds, and some contrary to appearance. Some admit of certainty, and not to be moved in what they hold: others waver in every thing; and there want not those that reject all as uncertain. What then shall a novice, an enquirer, a stranger do, in the case? I answer, use his eyes. There is a correspondence in things, and agreement and disagreement in ideas, discernable in very different degrees, and there are eyes in men to see them, if they please, only their eyes may be dimmed or dazzed, and the discerning sight them impaired or lost. Interest and passion dazzle; the custom of arguing on any side, even against our persuasions, dims the understanding, and makes it, by degrees, lose the *faculty of discerning* clearly between truth and

falsehood, and so of adhering to the right side. It is not safe to play with error, and dress it up to ourselves or others in the shape of truth.—The mind by degrees loses its natural relish of real solid truth, is reconciled insensibly to any thing that can but be dressed up into any faint appearance of it; and if the fancy be allowed the place of judgment at first in sport, it afterwards comes by use to usurp it, and what is recommended by this flatterer, (that studies but to please,) is received for good. There are so many ways of falacy, such arts of giving colours, appearances, and resemblances, by this court-dresser, the fancy, that he who is not wary to admit nothing but truth itself, very careful not to make his mind subservient so any thing else, cannot but be caught. He that has a mind to believe, has half assented already; and he that by often arguing against his own sense, imposes falsehood on others, is not far from believing himself. This takes away the great distance there is betwixt truth and falshood; it brings them almost together, and makes it no great odds in things that approach so near, which you take; and when things are brought to that pass, passion or interest, &c. easily, and without being perceived, determine which shall be the right.

SECT. XXXIV.

INDIFFERENCY.

I HAVE said above, that we should keep a *perfect indifferency* for all opinions, not with any

f them true, or try to make them appear so; but eing indifferent, receive and embrace them accordıg as evidence, and that alone gives the attestation f truth. They that do thus, *i. e.* keep their minds ıdifferent to opinions, to be determined only by vidence, will always find the understanding has erception enough to distinguish between evience or no evidence, betwixt plain and doubtful; nd if they neither give nor refuse their assent but y that measure, they will be safe in the opinions ıey have. Which being perhaps but few, this aution will have also this good in it, that it will ut them upon considering, and teach them the ecessity of examining more than they do; without vhich the mind is but a receptacle of inconsistncies, not the store-house of truths. They that o not keep up this indifferency in themselves for ll but truth, not supposed, but evidenced in hemselves, put coloured spectacles before their eyes, nd look on things through false glasses, and then hink themselves excused in following the false apearances, which they themselves put upon them. do not expect that by this way the assent should n every one be proportioned to the grounds and learness wherewith every truth is capable to be nade out, or that men should be perfectly kept om error: that is more than human nature can y any means be advanced to; I aim at no such nattainable privilege; I am only speaking of vhat they should do, who would deal fairly with heir own minds, and make a right use of their culties in the pursuit of truth; we fail them a reat deal *more than they* fail us. It is mismaagement *more than* want of abilities that men

have reason to complain of, and which they actually do complain of, in those that differ from them. He that by an indifferency for all but truth, suffers not his assent to go faster than his evidence, nor beyond it, will learn to examine, and examine fairly, instead of presuming; and nobody will be at a loss or in danger for want of embracing those truths, which are necessary in his station and circumstances. In any other way but this all the world are born to orthodoxy; they imbibe at first the allowed opinions of their country and party, and so, never questioning their truth, not one of an hundred ever examines. They are applauded for presuming they are in the right. He that considers is a foe to orthodoxy, because possibly he may deviate from some of the received doctrines there. And thus men without any industry or acquisition of their own, inherit local truths, (for it is not the same every where,) and are inured to assent without evidence. This influences farther than is thought; for what one in an hundred of the zealous bigots in all parties ever examines the tenets he is so stiff in, or ever thought it his business or duty so do? It is suspected of luke-warmness to suppose it necessary, and a tendency to apostacy to go about it. And if a man can bring his mind once to be positive and fierce for positions, whose evidence he has never once examined, and that in matters of greatest concernment to him, what shall keep him from this short and easy way of being in the right in cases of less moment,? thus we are taught to cloath *our minds* as we do our bodies, after the fashion in *vogue*, and it is accounted fantasticalness, or some-

thing worse, not to do so. This custom which (who dare oppose) makes the short-sighted bigots, and the warier sceptics, as far as it prevails. And those that break from it are in danger of heresy; for taking the whole world, how much of it doth truth and orthodoxy possess together? Though it is by the last alone, (which has the good luck to be every where,) that error and heresy are judged of; for argument and evidence signify nothing in the case, and excuse no where, but are sure to be borne down in all societies by the infallible orthodoxy of the place. Whether this be the way to truth and right assent, let the opinions that take place and prescribe in the several habitable parts of the earth, declare. I never saw any reason yet why truth might not be trusted to its own evidence: I am sure if that be not able to support it, there is no fence against error, and then truth and falsehood are but names that stand for the same things. Evidence, therefore, is that by which alone every man is, (and should be,) taught to regulate his assent, who is then, and then only, in the right way when he follows it.

Men deficient in knowledge are usually in one of these three states, either wholly ignorant; or as doubting of some proposition they have either embraced formerly, or at present are inclined to; or, lastly, they do with assurance hold and profess without ever having examined, and being convinced by well grounded arguments.

The first of these are in the best state of the three, by having their minds yet in their perfect freedom and indifferency, the likelier to pursue truth the better, having no bias yet clapped on to *mislead them.*

SECT. XXXV.

INDIFFERENCY.

For ignorance with an indifferency for truth is nearer to it, than opinion with ungrounded inclination, which is the great source of error; and they are more in danger to go out of the way, who are marching under the conduct of a guide, that it is an hundred to one will mislead them, than he that has not yet taken a step, and is likelier to be prevailed on to enquire after the right way. The last of the three sorts are in the worst condition of all; for if a man can be persuaded and fully assured of any thing for a truth, without having examined what is there that he may not embrace for truth; and if he has given himself up to believe a lie, what means is there left to recover one who can be assured without examining. To the other two this I crave leave to say, that as he that is ignorant is in the best state of the two, so he should pursue truth in a method suitable to that state, *i. e.* by enquiring directly into the nature of the thing itself, without minding the opinions of others, or troubling himself with their questions or disputes about it, but to see what he himself can, sincerely searching after truth, find out. He that proceeds upon others' principles in his enquiry into any sciences, though he be resolved to examine them and judge of them freely, does yet at least put himself on that side, and post himself in a party which he will not quit until he be beaten out; by which the *mind is* insensibly engaged to make what defence

it can, and so is unawares biassed. I do not say but a man should embrace some opinion when he has examined, else he examines to no purpose; but the surest and safest way is to have no opinion at all until he has examined, and that without any the least regard to the opinions or systems of other men about it. For example, were it my business to understand physic, would not the safer and readier way be to consult nature itself, and inform myself in the history of diseases and their cures, than espousing the principles of the dogmatists, methodists, or chymists, engage in all the disputes concerning either of those systems, and suppose it true, until I have tried what they can say to beat me out of it. Or, supposing that Hippocrates, or any other book, infallibly contains the whole art of physic, would not the direct way be to study, read, and consider that book, weigh and compare the parts of it, to find the truth, rather than espouse the doctrines of any party; who, though they acknowledge his authority, have already interpreted and wire-drawn all his text to their own sense; the tincture whereof when I have imbibed, I am more in danger to misunderstand his true meaning, than if I had come to him with a mind unprepossessed by doctors and commentators of my sect, whose reasonings, interpretation, and language, which I have been used to, will of course make all chime that way, and make another, and perhaps the genuine meaning of the author seem harsh, strained, and uncouth to me. For words having naturally none of their own, carry that signification to the hearer that he is used to put upon them, whatever *be the sense* of him that uses them.—

This, I think, is visibly so; and if it be, he that begins to have any doubt of any of his tenets, which he received without examination, ought, as much as he can, to put himself wholly into this state of ignorance in reference to that question, and throwing wholly by all his former notions, and the opinions of others, examine, with a perfect indifferency, the question in its source, without any inclination to either side, or any regard to his or others unexamined opinion. This, I own, is no easy thing to do, but I am not enquiring the easy way to opinion, but the right way to truth; which they must follow who will deal fairly with their own understandings and their own souls.

SECT. XXXVI.

QUESTION.

THE indifferency that I here propose, will also enable them to state the question right, which they are in doubt about, without which they can never come to a fair and clear decision of it.

SECT. XXXVII.

PERSEVERANCE.

ANOTHER fruit from this indifferency, and the considering things in themselves, abstract from our own opinions and other men's notions, and discourses on them, will be that each man will pursue his thoughts in that method which will be most agreeable to the nature of the thing, and to his ap-

prehension of what it suggests to him; in which he ought to proceed with regularity and consistency, until he come to a well-grounded resolution wherein he may acquiesce. If it be objected that this will require every man to be a scholar, and quit all his other business, and betake himself wholly to study, I answer, I propose no more to any one than he has time for. Some men's state and condition require no great extent of knowledge; the necessary provision for life follows the greatest part of their time. But one man's want of leisure is no excuse for the oscitancy and ignorance of those who have time to spare; and every one has enough to get as much knowledge as is required and expected of him; and he that does not that, is in love with ignorance, and is accountable for it.

SECT. XXXVIII.

PRESUMPTION.

THE variety of distempers in men's minds is as great as those in their bodies; some are epidemic, few escape them, and every one too, if he would look into himself, would find some defect of his particular genius. There is scarce any one without some idiosyncrasy, that he suffers by. This man presumes upon his parts, that they will not fail him upon time of need, and so thinks it superfluous labour to make any provisions before-hand. His understanding is to him like Fortunatus's purse, which is always to furnish him without ever putting any thing into it before hand; and so he sits still satisfied, *without endeavouring* to store his under-

standing with knowledge. It is the spontaneous product of the country, and what need of labour in tillage? Such men may spread their native riches before the ignorant; but they were best not come to stress and trial with the skilful. We are born ignorant of every thing. The superficies of things that surround them, make impressions on the negligent, but no body penetrates into the inside without labour, attention, and industry. Stones and timber grow of themselves; but yet there is no uniform pile, with symmetry and convenience to lodge in, without toil and pains. God has made the intellectual world harmonious and beautiful without us; but it will never come into our heads all at once; we must bring it home piece-meal, and there set it up by our own industry, or else we shall have nothing but darkness and a chaos within, whatever order and light there be in things without us.

SECT. XXXIX.

DESPONDENCY.

On the other side, there are others that depress their own minds, despond at the first difficulty, and conclude that the getting an insight in any of the sciences, or making any progress in knowledge, farther than serves their ordinary business, is above their capacities. These sit still, because they think they have not legs to go, as the others I last mentioned do, because they think they have wings to fly, and can soar on high when they please. *To these latter* one may for answer apply to the *proverb*, "use legs and have legs." Nobody knows

what stregth of parts he has, until he has tried them. And of the understanding one may most truly say, that its force is greater generally than it thinks, until it is put to it. "Viresque acquirit eundo."

And therefore the proper remedy here is but to set the mind to work, and apply the thoughts vigorously to the business; for it holds in the struggles of the mind, as in those of war, "dum putant se vincere vicere;" a persuasion that we shall overcome any difficulties that we meet with in the sciences, seldom fails to carry us through them. Nobody knows the strength of his mind, and the force of steady and regular application, until he has tried. This is certain, he that sets out upon weak legs, will not only go farther, but grow stronger too, than one who with a vigorous constitution, and firm limbs, only sits still.

Something of kin to this, men may observe in themselves, when the mind frights itself, (as it often does,) with any thing reflected on in gross, and transiently viewed, confusedly, and at a distance. Things thus offered to the mind carry, the shew of nothing but difficulty in them, and are thought to be wrapped up in impenetrable obscurity. But the truth is, these are nothing but spectres that the understanding raises to itself, to flatter its own laziness. It sees nothing distinctly in things remote, and in a huddle, and therefore concludes too faintly, that there is nothing more clear to be discovered in them. It is but to approach nearer, and that mist of our own raising that enveloped them, will remove; and those that in the mist appeared hideous giants not to be grappled with, will be

found to be of the ordinary and natural size and shape. Things that in a remote and confused view seem very obscure, must be approached by gentle and regular steps; and what is most visible, easy, and obvious, in them first considered. Reduce them into their distinct parts; and then in their due order bring all that should be known concerning every one of those parts, into plain and simple questions; and then, what was thought obscure, perplexed, and too hard for weak parts, will lay itself open to the understanding in a fair view, and let the mind into that which before it was awed with, and kept at a distance from, as wholly mysterious. I appeal to my reader's experience, whether this has never happened to him, especially when busy on one thing, he has occasionally reflected on another. I ask him, whether he has never thus been scared with a sudden opinion of mighty difficulties, which yet have vanished when he has seriously and methodically applied himself to the consideration of this seeming terrible subject; and there has been no other matter of astonishment left, but that he amused himself with so discouraging a prospect of his own raising, about a matter which in the handling was found to have nothing in it more strange nor intricate than several other things which he had long since, and with ease mastered. This experience should teach us how to deal with such bugbears another time, which should rather serve to excite our vigour, than enervate our industry. The surest way for a learner, in this as in all other cases, is not to advance by jumps and large strides; let that which *he sets himself* to learn next, be indeed the next,

i. e. as nearly conjoined with what he knows already as is possible; let it be distinct, but not remote from it; let it be new, and what he did not know before, that the understanding may advance; but let it be as little at once as it may be, that its advances may be clear, and sure. All the ground that it gets this way it will hold. This distinct, gradual growth in knowledge is firm and sure, it carries its own light with it in every step of its progression in an easy and ordinary train, than which there is nothing of more use to the understanding. And though this perhaps may seem a very slow and lingering way to knowledge, yet I dare confidently affirm, that whoever will try it in himself, or any one he will teach, shall find the advances greater in this method, than they would in the same space of time have been in any other he could have taken. The greatest part of true knowledge lies in a distinct perception of things in themselves distinct. And some men give more clear light and knowledge by the bare distinct stating of a question, than others by talking of it in gross whole hours together. In this, they who so state a question, do no more but separate and disentangle the parts of it one from another, and lay them when so disentangled, in their due order. This often, without any more ado, resolves the doubt, and shews the mind where the truth lies. The agreement or disagreement of the ideas in question, when they are once separated and distinctly considered, is, in many cases, presently perceived, and thereby clear and lasting knowledge gained; whereas things in gross taken up together, and so laying together in confusion, can produce in the mind but

a confused, which in effect is no, knowledge; or at least, when it comes to be examined, and made use of, will prove little better than none. I therefore take the liberty to repeat here again what I have said elsewhere, that in learning any thing, as little should be proposed to the mind at once, as is possible; and that being understood and fully mastered, to proceed to the next adjoining part yet unknown, simple, unperplexed proposition belonging to the matter in hand, and tending to the clearing what is principally designed.

SECT. XL.

ANALOGY.

ANALOGY is of great use to the mind in many cases, especially in natural philosophy, and that part of it chiefly which consists in happy and successful experiments. But here we must take care that we keep ourselves within that wherein the analogy consists. For example, the acid oil of vitriol is found to be good in such a case, therefore the spirit of nitre or vinegar, may be used in the like case. If the good effect of it be owing wholly to the acidity of it, the trial may be justified; but if there be something else besides the acidity in the oil of vitriol, which produces the good we desire in the case, we mistake that for the analogy, which is not, and suffer our understanding to be misguided by a wrong supposition of analogy where there is none.

SECT. XLI.

ASSOCIATION.

THOUGH I have in the second book of my essay concerning human understanding, treated of the association of ideas; yet having done it there historically, as giving a view of the understanding in this as well as its several other ways of operating, rather than designing there to enquire into the remedies, ought to be applied to it. It will, under this latter consideration, afford other matter of thought to those who have a mind to instruct themselves thoroughly in the right way of conducting their understandings; and that the rather, because this, if I mistake not, is as frequent a cause of mistake and error in us, as perhaps any thing else that can be named, and is a disease of the mind as hard to be cured as any; it being a very hard thing to convince any one that things are not so, and naturally so as they constantly appear to him.

By this one easy and unheeded miscarriage of the understanding, sandy and loose foundations become infallible principles, and will not suffer themselves to be touched or questioned: such unnatural connections become by custom as natural to the mind, as sun and light. Fire and warmth go together; and so seem to carry with them as natural an evidence as self-evident truths themselves. And where then shall one with hopes of success begin the cures? Many men firmly embrace falshood for truth; not only because they never thought otherwise, but also because thus blinded as they have *been from the* beginning, they never could

think otherwise; at least without a vigour of mind able to contest the empire of habit, and look into its own principles; a freedom which few men have the notions of in themselves, and fewer are allowed the practice of by others; it being the great art and business of the teachers and guides in most sects to suppress, as much as they can, this fundamental duty which every man owes himself, and is the first steady step towards right and truth in the whole train of his actions and opinions. This would give one reason to suspect, that such teachers are conscious to themselves of the falshood or weakness of the tenets they profess, since they will not suffer the grounds whereon they are built to be examined; when as those who seek truth only, and desire to own and propagate nothing else, freely expose their principles to the test, and are pleased to have them examined, give men leave to reject them if they can; and if there be any thing weak and unsound in them, are willing to have it detected, and they themselves, as well as others, may not lay any stress upon any received proposition beyond what the evidence of its truth will warrant and allow.

There is, I know, a great fault among all sorts of people, of principling their children and scholars; which at last, when looked into, amounts to no more, but making them imbibe their teachers' notions and thence by an implicit faith, and firmly to adhere to them whether true or false. What colours may be given to this, or of what use it may be when practised upon the vulgar destined to labour, and given up to the service of their bellies, I will *here enquire*. But as to the ingenuous part of man-

kind, whose condition allows them leisure, and letters, and enquiry after truth; I can see no other right way of principling them, but to take heed, as much as may be, that in their tender years, ideas that have no natural cohesion, come not to be united in their heads, and that this rule be often inculcated to them to be their guide in the whole course of their lives and studies, *viz.* that they never suffer any ideas to be joined in their understandings, in any other or stronger combination than what their own nature and correspondence give them; and that they often examine those that they find linked together in their minds, whether this association of ideas be from the visible agreement that is in the ideas themselves, or from the habitual and prevailing custom of the mind joining them thus together in thinking.

This is for caution against this evil, before it be thoroughly rivetted by custom in the understanding; but he that would cure it when habit has established it, must nicely observe the very quick, and almost imperceptible motions of the mind in its habitual actions. What I have said in another place about the change of the ideas of sense into those of judgment, may be proof of this. Let any one not skilled in painting, be told when he sees bottles and tobacco-pipes, and other things so painted, as they are in some places shewn, that he does not see protuberancies, and you will not convince him but by the touch: he will not believe that by an instantaneous legerdemain of his own thoughts, one idea is substituted for the other. How frequent instances may one meet with of this in the arguings of *the learned, who not seldom* in two ideas that they *have been accustomed to* join in their minds, substi-

tute one for the other; and, I am apt to think, often without perceiving it themselves. This, whilst they are under the deceit of it, makes them uncapable of conviction, and they applaud themselves as zealous champions for truth, when indeed they are contending for error. And the confusion of two different ideas, which a customary connection of them in their minds hath made to them almost one, fills their head with false views, and their reasonings with false consequences.

SECT. XLII.

FALLACIES.

RIGHT understanding consists in the discovery and adherence to truth, and that in the perception of the visible or probable agreement or disagreement of ideas as they are affirmed and denied one of another. From whence it is evident, that the right use and conduct of the understanding, whose business is purely truth, and nothing else, is, that the mind should be kept in a perfect indifferency, not inclining to either side, any farther than evidence settles it by knowledge, or the over-balance of probability gives it the turn of assent and belief; but yet it is very hard to meet with any discourse, wherein one may not perceive the author not only maintain, (for that is reasonable and fit,) but inclined and biassed to one side of the question, with marks of a desire that it should be true.

If it be asked me, how authors who have such a *bias*, and lean to it may be discovered; I answer,

by observing how in their writings or arguings they are often led by their inclinations to change the ideas of the question, either by changing the terms, or by adding and joining others to them, whereby the ideas under consideration are so varied as to be more serviceable to their purpose, and to be thereby brought to an easier and nearer agreement, or more visible and remoter disagreement one with another. This is plain and direct sophistry; but I am far from thinking, that wherever it is found it is made use of with design to deceive and mislead the readers.

It is visible that men's prejudices and inclinations by this way impose often upon themselves; and their affection for truth, under their prepossession in favour of one side, is the very thing that leads them from it. Inclination suggests and slides into their discourse favourable terms, which introduce favourable ideas, until at last by this means, that is concluded clear and evident, thus dressed up, which, taken in its native state, by making use of none but the precise determined ideas, would find no admittance at all. The putting these glosses on what they affirm, these, as they are thought, handsome, easy, and graceful explications, of what they are discoursing on, is so much the character of what is called and esteemed writing well, that it is very hard to think that authors will ever be persuaded to leave what serves so well to propagate their opinions, and procure themselves credit in the world, for a more jejune and dry way of writing, by keeping to the same terms precisely annexed to the same ideas; a sour and blunt stiffness tolerable

in mathematicians only, who force their way, and make truth prevail by irresistible demonstration.

But yet if authors cannot be prevailed with to quit the looser, though more insinuating ways of writing, if they will not think fit to keep close to truth and instruction by unvaried terms, and plain unsophisticated arguments, yet it concerns readers not to be imposed on by falacies, and the prevailing ways of insinuation. To do this, the surest, and most effectual remedy is to fix in the mind the clear and distinct ideas of the question stripped of words; and so likewise in the train of argumentation, to take up the author's ideas neglecting his words, observing how they connect or separate those in the question. He that does this will be able to cast off all that is superfluous; he will see what is pertinent, what coherent, what is direct to, what slides by the question. This will readily shew him all the foreign ideas in the discourse, and where they are brought in; and though they perhaps dazzled the writer, yet he will perceive that they give no light nor strength to his reasonings.

This, though it be the shortest and easiest way of reading books with profit, and keeping one's self from being misled by great names or plausible discourses; yet it being hard and tedious to those who have not accustomed themselves to it; it is not to be expected that every one, (amongst those few who really pursue truth) should this way guard his understanding from being imposed on by the wilful, or at least undesigned sophistry, *which* creeps into most of the books of argument. *They that* write against their conviction, or that

next to them, are resolved to maintain the tenets of a party they are engaged in, cannot be supposed to reject any arms that may help to defend their cause, and therefore such should be read with the greatest caution. And they who write for opinions they are sincerely persuaded of, and believe to be true, think they may so far allow themselves to indulge their laudable affection to truth, as to permit their esteem of it, to give it the best colours, and set it off with the best expressions and dress they can, thereby to gain it the easiest entrance into the minds of their readers, and fix it deepest there.

One of those being the state of mind we may justly suppose most writers to be in, it is fit their readers, who apply to them for instruction, should not lay by that caution which becomes a sincere pursuit of truth, and should make them always watchful against whatever might conceal or misrepresent it. If they have not the skill of representing to themselves the author's sense by pure ideas separated from sounds, and thereby divested of the false lights and deceitful ornaments of speech; this yet they should do, they should keep the precise question steadily in their minds, carry it along with them through the whole discourse, and suffer not the least alteration in the terms, either by addition, substraction, or substituting any other. This every one can do who has a mind to it; and he that has not a mind to it, it is plain makes his understanding only the warehouse of other men's lumber; I mean false and unconcluding reasonings, rather than a repository of truth *for his own use, which* will prove substantial, and

stand him in stead when he has occasion for it. And whether such an one deals fairly by his own mind, and conducts his own understanding right, I leave to his own understanding to judge.

SECT. XLIII.

FUNDAMENTAL VERITIES.

THE mind of man being very narrow, and so slow in making acquaintance with things, and taking in new truths, that no one man is capable, in a much longer life than ours, to know all truths; it becomes our prudence in our search after knowledge, to employ our thoughts about fundamental and material questions, carefully avoiding those that are trifling, and not suffering ourselves to be diverted from our main even purpose, by those that are merely incidental. How much of many young men's time is thrown away in purely logical enquiries, I need not mention. This is no better than if a man who was to be a painter, should spend all his time in examining the threads of the several cloths he is to paint upon, and counting the hairs of each pencil and brush he intends to use in the laying on of his colours. Nay, it is much worse than for a young painter to spend his apprenticeship in such useless niceties; for he at the end of all his pains to no purpose, finds that it is not painting, nor any help to it, and so is really to no purpose. Whereas men designed for scholars *have often* their heads so filled and warmed with *disputes on logical* questions, that they take those *airy useless* notions for real and substantial know-

ledge, and think their understandings so well furnished with science, that they need not look any farther into the nature of things, or descend to the mechanical drudgery of experiment and enquiry. This is so obvious a mismanagement of the understanding, and that in the professed way to knowledge, that it could not be passed by; to which might be joined abundance of questions, and the way of handling of them in the schools. What faults in particular of this kind, every man is, or may be guilty of, would be infinite to enumerate, it suffices to have shewn that superficial and slight discoveries and observations that contain nothing of moment in themselves, nor serve as clues to lead us into farther knowledge, should be lightly passed by, and never thought worth our searching after.

There are fundamental truths that lie at the bottom, the basis upon which a great many others rest, and in which they have their consistency. These are teeming truths, rich in store, with which they furnish the mind, and, like the lights of heaven, are not only beautiful and entertaining in themselves, but give light and evidence to other things, that without them could not be seen or known. Such is that admirable discovery of Mr. Newton, that all bodies gravitate to one another, which may be counted as the basis of natural philosophy; which of what use it is to the understanding of the great frame of our solar system he has to the astonishment of the learned world shewn, and how much farther it would guide us in other things, if rightly pursued, is not yet known. Our Saviour's great rule, that *we should love our neighbour as ourselves*, is such a fundamental truth for

the regulating human society; that, I thin
by that alone, one might without difficulty,
mine all the cases and doubts in social m
These, and such as these are the truths we
endeavour to find out, and store our mind
Which leads me to another thing in the con
the understanding, that is no less necessary,

SECT. XLIV.

BOTTOMING.

To accustom ourselves in any question pr
to examine and find out upon what it bc
Most of the difficulties that come in ou
when well considered and traced, lead us t
proposition, which known to be true, cle
doubt, and gives an easy solution of the qu
whilst topical and superficial arguments, of
there is store to be found on both sides, filli
head with variety of thoughts, and the mout
copious discourse, serve only to amuse the
standing, and entertain company without c
to the bottom of the question, the only pl
rest and stability for an inquisitive mind,
tendency is only to truth and knowledge.

For exampie, if it be demanded, whetl
Grand Seignior can lawfully take what h
from any of his people? This question can
resolved without coming to a certainty, w
all men are naturally equal; for upon that it
and that truth well settled in the understa
and carried in the mind through the vario
bates concerning the various rights of me

ciety, will go a great way in putting an end to them, and shewing on which side the truth is.

SECT. XLV.

TRANSFERRING OF THOUGHTS.

THERE is scarce any thing more for the improvement of knowledge, for the ease of life, and the dispatch of business, than for a man to be able to dispose of his own thoughts; and there is scarce any thing harder in the whole conduct of his understanding than to get a full mastery over it. The mind in a waking man, has always some object that it applies itself to; which, when we are lazy or unconcerned, we can easily change, and at pleasure transfer the thoughts to another, and from thence to a third, which has no relation to either of the former. Hence men forwardly conclude, and frequently say, nothing is so free as thought, and it were well it were so; but the contrary will be found true in several instances; and there are many cases wherein there is nothing more restive and ungovernable than our thoughts: they will not be directed what objects to pursue, nor be taken off from those they have once fixed on, but run away with a man in pursuit of those ideas they have in view, let him do what he can.

I will not here mention again what I have above taken notice of how hard it is to get the mind narrowed by a custom of thirty or forty years standing to a scanty collection of obvious and common ideas, to enlarge itself to a more copious stock, and grow *into an* acquaintance with those that

would afford more abundant matter of useful contemplation; it is not of this I am here speaking. The inconvenience I would here represent and find a remedy for, is the difficulty there is sometimes to transfer our minds from one subject to another, in cases where the ideas are equally familiar to us.

Matters that are recommended to our thoughts by any of our passions, take possession of our minds with a kind of authority, and will not be kept out or dislodged, but if the passion that rules, were, for the time, the sheriff of the place, and came with all the posse, the understanding is seized and taken with the object it introduces, as if it had a legal right to be alone considered there. There is scarce any body, I think, of so calm a temper who hath not sometime found this tyranny on his understanding, and suffered under the inconvenience of it. Who is there almost whose mind, at some time or other, love or anger, fear or grief has not so fastened to some clog, that it could not turn itself to any other object. I call it a clog, for it hangs upon the mind so as to hinder its vigour and activity in the pursuit of other contemplations, and advances itself little or not at all in the knowledge of the thing which it so closely huggs and constantly pores on. Men thus possessed, are sometimes as if they were so in the worst sense, and lay under the power of an inchantment. They see not what passes before their eyes, hear not the audible discourse of the company; and when by any strong application to them they are roused a little, they are like men brought to themselves from some *remote region*; whereas in truth they come no farther than their secret cabinet within, where they

ve been wholly taken up with the puppet, which for that time appointed for their entertainment. he shame that such dumps cause to well-bred ople, when it carries them away from the comny, where they should bear a part in the converion, is a sufficient argument, that it is a fault in e conduct of our understanding, not to have that wer over it as to make use of it to those purses, and on those occasions wherein we have ed of its assistance. The mind should be ways free, and ready to turn itself to the vaety of objects that occur, and allow them as much nsideration as shall, for that time, be thought fit. o be engrossed so by one subject, as not to be revailed on to leave it for another that we judge tter for our contemplation, is to make it of no use us. Did this state of mind remain always so, very one would, without scruple, give it the ame of perfect madness; and while it does last, t whatever intervals it returns, such a rotation of houghts about the same object no more carries s forwards to the attainment of knowledge, than etting upon a mill-horse, whilst he jogs on in his ircular track, would carry a man a journey.

I grant something must be allowed to legitimate assions, and to natural inclinations. Every man esides occasional affections, has beloved studies, nd those the mind will more closely stick to; but et it is best that it should be always at liberty, and nder the free disposal of the man, to act how, nd upon what he directs. This we should endeour to obtain, unless we would be content with uch a flaw in our understandings, that sometimes *we should be as it were* without it; for it is very

little better than so in cases where we cannot make use of it to those purposes we would, and which stand in present need of it.

But before fit remedies can be thought on for this disease, we must know the several causes of it, and thereby regulate the cure, if we will hope to labour with success.

One we have already instanced in, whereof all men that reflect have so general a knowledge, and so often an experience in themselves, that nobody doubts of it. A prevailing passion so pins down our thoughts to the object and concern of it, that a man passionately in love cannot bring himself to think of his ordinary affairs, nor a kind mother drooping under the loss of a child, is not able to bear a part as she was wont in the discourse of the company or conversation of her friends.

But though passion be the most obvious and general, yet it is not the only cause that binds up the understanding, and confines it for the time to one object, from which it will not be taken off.

Besides this, we may often find that the understanding when it has awhile employed itself upon a subject which either chance, or some slight accident, offered to it without the interest or recommendation of any passion works itself into a warmth, and by degrees gets into a career, wherein, like a bowl down a hill, it increases its motion by going, and will not be stopped or diverted, though, when the heat is over, it sees all this earnest application was about a trifle not worth a thought, and all the pains employed about it, lost labour.

There is a third sort, if I mistake not, yet lower than this; it is a sort of childishness, if I may

so say, of the understanding, wherein, during the fit, it plays with, and dandles some insignificant puppet to no end, nor with any design at all, and yet cannot easily be got from it. Thus some trivial sentence, or a scrap of poetry will sometimes get into men's heads, and make such a chiming there, that there is no stilling of it; no peace to be obtained, nor attention to any thing else, but this impertinent guest will take up the mind, and possess the thoughts in spite of all endeavours to get rid of it. Whether every one has experimented in themselves this troublesome intrusion of some frisking ideas which thus importune the understanding, and hinder it from being better employed, I know not. But persons of very good parts, and those more than one, I have heard speak and complain of it themselves. The reason I have to make this doubt, is from what I have known in a case something of kin to this, though much odder, and that is of a sort of visions that some people have lying quiet but perfectly awake in the dark, or with their eyes shut. It is a great variety of faces, most commonly very odd ones, that appear to them in train one after another; so that having had just the sight of one, it immediately passes away to give place to another, that the same instant succeeds, and has as quick an exit as its leader, and so they march on in a constant succession; nor can any one of them by any endeavour be stopped or retained beyond the instant of its appearance, but is thrust out by its follower, which will have its turn. Concerning this fantastical phænomenon, I have talked with *several people, whereof* some have been perfectly

acquainted with it, and others have been so wholly strangers to it, that they could hardly be brought to conceive or believe it. I knew a lady of excellent parts, who had got past thirty, without having ever had the least notice of any such thing; she was so great a stranger to it, that when she heard me and another talking of it, could scarce forbear thinking we bantered her; but sometime after drinking a large dose of dilute tea, (as she was ordered by a physician,) going to bed, she told us at next meeting, that she had now experimented what our discourse had much ado to persuade her of. She had seen a great variety of faces in a long train, succeeding one another, as we had described, they were all strangers and intruders, such as she had no acquaintance with before, nor sought after then, and as they came of themselves they went too; none of them staid a moment, nor could be detained by all the endeavours she could use, but went on in their solemn procession, just appeared and then vanished. This odd phænomenon seems to have a mechanical cause, and to depend upon the matter and motion of the blood or animal spirits.

When the fancy is bound by passion, I know no way to set the mind free and at liberty to prosecute what thoughts the man would make choice of but to allay the present passion, or counter-balance it with another, which is an art to be got by study, and acquaintance with the passions.

Those who find themselves apt to be carried away with the spontaneous current of their own *thoughts*, not excited by any passion or interest, *must be very* wary and careful in all the instances

of it to stop it, and never humour their minds in being thus triflingly busy. Men know the value of their corporal liberty, and therefore suffer not willingly fetters and chains to be put upon them. To have the mind captivated is, for the time, certainly the greater evil of the two, and deserves our utmost care and endeavours to preserve the freedom of our better part. And in this case our pains will not be lost; striving and struggling will prevail, if we constantly, in all such occasions, make use of it. We must never indulge these trivial attentions of thought; as soon as we find the mind makes itself a business of nothing, we should immediately disturb and check it, introduce new and more serious considerations, and not leave until we have beaten it off from the pursuit it was upon. This, at first, if we have let the contrary practice grow to a habit, will perhaps be difficult; but constant endeavours will by degrees prevail, and at last make it easy. And when a man is pretty well advanced, and can command his mind off at pleasure from incidental and undesigned pursuits, it may not be amiss for him to go on farther, and make attempts upon meditations of greater moment, that at the last he may have full power over his own mind, and be so fully master of his own thoughts, as to be able to transfer them from one subject to another, with the same ease that he can lay by any thing he has in his hand, and take something else that he has a mind to in the room of it This liberty of mind is of great use both in business and study, and he that has got it will have no small advantage of ease and *dispatch in* all that is the chosen and *useful employment of* his understanding.

The third and last way which I mentioned the mind to be sometimes taken up with, I mean the chiming of some particular words or sentence in the memory, and, as it were, making a noise in the head, and the like, seldom happens but when the mind is lazy, or very loosely or negligently employed. It were better indeed to be without such impertinent and useless repetitions. Any obvious idea, when it is roving causelessly at a venture, being of more use and apter to suggest something worth consideration, than the insignificant buz of purely empty sounds. But since the rouzing of the mind, and setting the understanding on work with some degree of vigour, does for the most part presently set it free from these idle companions; it may not be amiss whenever we find ourselves troubled with them, to make use of so profitable a remedy that is always at hand.

SOME THOUGHTS

CONCERNING

READING AND STUDY

FOR A

GENTLEMAN.

READING is for the improvement of the understanding.

The improvement of the understanding is for two ends; first, for our own increase of knowledge; secondly, to enable us to deliver and make out that knowledge to others.

The latter of these, if it be not the chief end of study in a gentleman; yet it is at least equal to the other, since the greatest part of his business and usefulness in the world is by the influence of what he says, or writes to others.

The extent of our knowledge cannot exceed the extent of our ideas. Therefore he, who would be universally knowing, must acquaint himself with the objects of all sciences. But this is not necessary to a gentleman, whose proper calling is the service of his country; and so is most properly concerned in moral and political knowledge; and thus the studies, which more immediately belong to his *calling, are those* which treat of virtues and vices.

of civil society, and the arts of government; and will take in also law and history.

It is enough for a gentleman to be furnished with the ideas belonging to his calling, which he will find in the books that treat of the matters above-mentioned.

But the next step towards the improvement of his understanding, must be to observe the connexion of these ideas in the propositions, which those books hold forth, and pretend to teach as truths; which till a man can judge, whether they be truths or no, his understanding is but little improved; and he doth but think and talk after the books that he hath read, without having any knowledge thereby. And thus men of much reading are greatly learned, but may be little knowing.

The third and last step therefore, in improving the understanding, is to find out upon what foundation any proposition advanced bottoms; and to observe the connexion of the intermediate ideas, by which it is joined to that foundation, upon which it is erected, or that principle, from which it is derived. This, in short, is right reasoning; and by this way alone true knowledge is to be got by reading and studying.

When a man by use, has got this faculty of observing and judging of the reasoning and coherence of what he reads, and how it proves what it pretends to teach; he is then, and not till then, in the right way of improving his understanding, and enlarging his knowledge by reading.

But that, as I have said, being not all that a *gentleman* should aim at in reading, he should far-

speaking, that so he may be able to make the best use of what he knows.

The art of speaking well consists chiefly in two things, viz. perspicuity and right reasoning.

Perspicuity consists in the using of proper terms for the ideas or thoughts, which he would have pass from his own mind into that of another man. It is this that gives them an easy entrance; and it is with delight, that men hearken to those, whom they easily understand; whereas what is obscurely said, dying as it is spoken, is usually not only lost, but creates a prejudice in the hearer, as if he that spoke knew not what he said, or was afraid to have it understood.

The way to obtain this, is to read such books as are allowed to be writ with the greatest clearness and propriety in the language that a man uses. An author excellent in this faculty, as well as several others, is Dr. Tillotson, late archbishop of Canterbury, in all that is published of his. I have chosen rather to propose this pattern, for the attainment of the art of speaking clearly, than those who gives rules about it; since we are more apt to learn by example, than by direction. But if any one hath a mind to consult the masters in the art of speaking and writing, he may find in Tully "De Oratore," and another treatise of his called Orator; and in Quintilian's Institutions; and Boileau's "Traité du Sublime;" instructions concerning this, and the other parts of speaking well.

Besides perspicuity, there must be also right reasoning; without which, perspicuity serves but to expose the speaker. And for the attaining of this, I should propose the constant reading of

Chillingworth, who by his example will teach both perspicuity and the way of right reasoning, better than any book that I know; and therefore will deserve to be read upon that account over and over again; not to say any thing of his argument.

Besides these books in English, Tully, Terence, Virgil, Livy, and Cæsar's Commentaries, may be read to form on's mind to a relish of a right way of speaking and writing.

The books I have hitherto mentioned have been in order only to writing and speaking well; not but they will deserve to be read on other accounts.

The study of morality I have above mentioned as that becomes a gentleman; not barely as a man, but in order to his business as a gentleman. Of this there are books enough writ both by ancient and modern philosophers; but the morality of the gospel doth so exceed them all, that, to give a man a full knowledge of true morality, I shall send him to no other book, but the New Testament. But if he hath a mind to see how far the heathen world carried that science, and whereon they bottomed their ethics, he will be delightfully and profitably entertained in Tully's treatises "De Officiis."

Politics contains two parts, very different the one from the other. The one, containing the original of societies, and the rise and extent of political power; the other, the art of governing men in society.

The first of these hath been so bandied amongst us, for these sixty years backward, that one can hardly miss books of this kind. Those, which I *think* are most talked of in English, are the first

book of Mr. Hooker's "Ecclesiastical Polity," and Mr. Algernon Sydney's "Discourses concerning Government." The latter of these I never read. Let me here add, "Two Treatises of Government," printed in 1690; and a Treatise of "Civil Polity," printed this year. To these one may add, Puffendorf "De Officio Hominis et Civis," and "De Jure Naturali et Gentium;" which last is the best book of that kind.

As to the other part of politics, which concerns the art of government; that, I think, is best to be learned by experience and history, especially that of a man's own country. And therefore I think an English gentleman should be well versed in the history of England, taking his rise as far back as there are any records of it; joining with it the laws that were made in the several ages, as he goes along in his history; that he may observe from thence the several turns of state, and how they have been produced. In Mr. Tyrrell's History of England, he will find all along those several authors which have treated of our affairs, and which he may have recourse to, concerning any point, which either his curiosity or judgment shall lead him to inquire into.

With the history, he may also do well to read the ancient lawyers; such as Bracton, "Fleta," Henningham, "Mirror of Justice," my lord Coke's "Second Institutes," and the "Modus tenendi Parliamentum; and others of that kind which he may find quoted in the late controversies between Mr. Petit, Mr. Tyrrel, Mr. Atwood, &c. with Dr. Brady; as also, I suppose, in Sedler's Trea-

tise of "Rights of the Kingdom, and Customs of our Ancestors," whereof the first edition is the best; wherein he will find the ancient constitution of the government of England.

There are two volumes of "State Tracts," printed since the revolution, in which there are many things relating to the government of England.

As for general history, Sir Walter Raleigh, and Dr. Howel, are books to be had. He, who hath a mind to launch farther into that ocean, may consult Whear's "Methodus legendi Historias," of the last edition; which will direct him to the authors he is to read, and the method wherein he is to read them.

To the reading of history, chronology and geography are absolutely necessary.

In geography, we have two general ones in English, Heylin and Moll; which is the best of them I know not; having not been much conversant in either of them. But the last, I should think to be of most use; because of the new discoveries that are made every day, tending to the perfection of that science. Though, I believe that the countries which Heylin mentions, are better treated of by him, bating what new discoveries since his time have added.

These two books contain geography in general, but whether an English gentleman would think it worth his time to bestow much pains upon that; though without it he cannot well understand a Gazette; it is certain he cannot well be without Camden's "Britannia," which is much enlarged

in the last English edition. A good collection of maps is also necessary.

To geography, books of travels may be added. In that kind, the collections made by our countrymen, Hackluyt and Purchas, are very good. There is also a very good collection made by Thevenot in folio, in French; and by Ramuzio, in Italian; whether translated into English or no, I know not. There are also several good books of travels of Englishmen published, as Sandys, Roe, Brown, Gage, and Dampier.

There are also several voyages in French, which are very good, as Pyrard, Bergeron, Sagard, Bernier, &c. whether all of them are translated into English, I know not.

There is at present a very good "collection of voyages and travels," never before in English, and such as are out of print; now printing by Mr. Churchill.

There are besides these a vast number of other travels; a sort of books that have a very good mixture of delight and usefulness. To set them down all, would take up too much time and room. Those I have mentioned are enough to begin with.

As to chronology, I think Helvicus the best for common use; which is not a book to be read, but to lie by, and to be consulted upon occasion. He that hath a mind to look farther into chronology, may get Tallent's "Tables," and Strauchius's "Breviarum Temporum," and may to those add Scaliger "De Emendatione Temporum," and Petavius, if he has a mind to engage deeper in that study.

Those, who are accounted to have writ best particular parts of our English history, are Bacon, of Henry VII. and Herbert of Henry VIII. Daniel also is commended; and Burnett's "History of the Reformation."

Mariana's "History of Spain," and Thuanus's "History of his own Time," and Philip de Comines; are of great and deserved reputation.

There are also several French and English memoirs and collections, such as la Rochefoucault, Melvil, Rushworth, &c. which give a great light to those who have a mind to look into what hath past in Europe this last age.

To fit a gentleman for the conduct of himself, whether as a private man, or as interested in the government of his country, nothing can be more necessary than the knowledge of men; which, though it be to be had chiefly from experience, and, next to that, from a judicious reading of history; yet there are books that of purpose treat of human nature, which help to give an insight into it. Such are those treating of the passions, and how they are moved; whereof Aristotle in his second book of Rhetoric hath admirably discoursed, and that in a little compass. I think this Rhetoric is translated into English; if not, it may be had in Greek and Latin together.

La Bruyere's "Characters" are also an admirable piece of painting; I think it is also translated out of French into English.

Satyrical writings also, such as Juvenal and Persius, and above all Horace; though they paint *the deformities* of men, yet they thereby teach us *to know them.*

There is another use of reading, which is for diversion and delight. Such are poetical writings, especially dramatic, if they be free from prophaneness, obscenity, and what corrupts good manners; or such pitch should not be handled.

Of all the books of fiction, I know none that equals "Cervantes's History of Don Quixote," in usefulness, pleasantry, and a constant decorum. And indeed no writing can be pleasant, which have not nature at the bottom, and are not drawn after her copy.

There is another sort of books, which I had almost forgot, with which a gentleman's study ought to be well furnished, viz. dictionaries of all kinds. For the Latin tongue, Littleton, Cooper, Calepin, and Robert Stephens's "Thesaurus Linguæ Latinæ," and "Vossii Etymologicum Lin-" guæ Latinæ." Skinner's "Lexicon Etymolo-" gicum," is an excellent one of that kind, for the English tongue. Cowel's "Interpreter" is useful for the law terms. Spelman's "Glossary" is a very useful and learned book. And Selden's "Titles " of Honour," a gentleman should not be without. Bauddrand hath a very good "Geographical Dic-" tionary." And there are several historical ones, which are of use; as Lloyd's Hoffman's "Moreri's. And Bayle's incomparable dictionary, is something of the same kind. He that hath occasion to look into books written in Latin since the decay of the Roman empire, and the purity of the Latin tongue, cannot be well without Du Cange's "Glossarium " mediæ et infimæ Latinitatis."

Among the books above set down, I menti
Vossius's "Etymologicum Linguæ Latinæ;"
his works are lately printed in Holland in
tomes. They are fit books for a gentleman's libi
containing very learned discourses concernin
the sciences.

ELEMENTS

OF

NATURAL PHILOSOPHY.

CHAP. I.

OF MATTER AND MOTION.

MATTER is an extended solid substance; which being comprehended under distinct surfaces, makes so many particular distinct bodies.

Motion is so well known by the sight and touch, that to use words to give a clear idea of it would be in vain.

Matter, or body, is indifferent to motion or rest.

There is as much force required to put a body, which is in motion, at rest; as there is to set a body, which is at rest, into motion.

No parcel of matter can give itself either motion or rest, and therefore a body at rest will remain so eternally, except some external cause puts it into motion; and a body in motion will move eternally, unless some external cause stops it.

A body in motion will always move on in a straight line, unless it be turned out of it by some external cause; because a body can no more alter the determination of its motion, than it can begin it, *alter or stop its motion itself.*

The swiftness of motion is measured by distance of place, and length of time wherein it is performed. For instance, if A and B, bodies of equal or different bigness, move each of them an inch in the same time; their motions are equally swift; but if A moves two inches, in the time whilst B is moving one inch; the motion of A is twice as swift as that of B.

The quantity of motion is measured by the swiftness of the motion, and the quantity of the matter moved, taken together. For instance, if A, a body equal to B, moves as swift as B; then it hath an equal quantity of motion. If A hath twice as much matter as B, and moves equally as swift, it hath double the quantity of motion; and so in proportion.

It appears, as far as human observation reaches, to be a settled law of nature, that all bodies have a tendency, attraction, or gravitation, towards one another.

The same force applied to two different bodies, produces always the same quantity of motion in each of them. For instance, let a boat which with its lading is one ton, be tied at a distance to another vessel, which with its lading is twenty-six tons; if the rope that ties them together be pulled, either in the less or bigger of these vessels, the less of the two, in their approach one to another, will move twenty-six feet, while the other moves but one foot.

Wherefore the quantity of matter in the earth being twenty-six times more than in the moon; the *motion* in the moon towards the earth, by the *common force* of attraction, by which they are

impelled towards one another, will be twenty-six times as fast as in the earth; that is, the moon will move twenty-six miles toward the earth, for every mile the earth moves towards the moon.

Hence it is, that, in this natural tendency of bodies towards one another, that in the lesser is considered as gravitation; and that in the bigger as attraction; because the motion of the lesser body (by reason of its much greater swiftness) is alone taken notice of.

This attraction is the strongest, the nearer the attracting bodies are to each other; and, in different distances of the same bodies, is reciprocally in the duplicate proportion of those distances. For instance, if two bodies, at a given distance, attract each other with a certain force, at half the distance, they will attract each other with four times that force; at one third of the distance, with nine times that force; and so on.

Two bodies at a distance will put one another into motion by the force of attraction; which is inexplicable by us, though made evident to us by experience, and so to be taken as a principle in natural philosophy.

Supposing then the earth the sole body in the universe, and at rest; if God should create the moon, at the same distance that it is now from the earth; the earth and the moon would presently begin to move one towards another in a straight line by this motion of attraction or gravitation.

If a body, that by the attraction of another would move in a straight line towards it, receives a new motion any ways oblique to the first; it will no *longer move in a* straight line, according to either

of those directions; but in a curve that will partake of both. And this curve will differ, according to the nature and quantity of the forces that concurred to produce it; as, for instance, in many cases it will be such a curve as ends where it began, or recurs into itself; that is, makes up a circle, or an elipsis or oval very little differing from a circle.

CHAP. II.

OF THE UNIVERSE.

To any one, who looks about him in the world, there are obvious several distinct masses of matter, separate from one another; some whereof have discernible motions. These are the sun, the fixt stars, the comets and the planets, amongst which this earth, which we inhabit, is one. All these are visible to our naked eyes.

Besides these, telescopes have discovered several fixt stars, invisible to the naked eye; and several other bodies moving about some of the planets; all which were invisible and unknown, before the use of perspective glasses were found.

The vast distance between these great bodies, are called intermundane spaces; in which though there may be some fluid matter, yet it is so thin and subtile, and there is so little of that in respect *of the great* masses that move in those spaces, that *it is as much* as nothing.

These masses of matter are either luminous, or *pake or dark.*

Luminous bodies, are such as give light of themselves; and such are the sun and the fixt stars.

Dark or opake bodies, are such as emit no light of themselves, though they are capable of reflecting of it, when it is cast upon them from other bodies; and such are the planets.

There are some opake bodies, as for instance, the comets, which, besides the light that they may have from the sun, seem to shine with a light that is nothing else but an accension, which they receive from the sun in their near approaches to it, in their respective revolutions.

The fixt stars are called fixt, because they always keep the same distance one from another.

The sun, at the same distance from us that the fixt stars are, would have the appearance of one of the fixt stars.

CHAP. III.

OF OUR SOLAR SYSTEM.

Our solar system consists of the sun, and the planets and comets moving about it.

The planets are bodies, which appear to us like stars; not that they are luminous bodies, that is, have light in themselves; but they shine by reflecting the light of the sun.

They are called planets from a Greek word, which signifies wandering; because they change their places, and do not always keep the same distance with one another, nor with the fixt stars, as the fixt stars do.

The planets are either primary, or secondary.

There are six primary planets, viz. Mercury, Venus, the Earth, Mars, Jupiter, and Saturn.

All these move round the sun, which is, as it were the centre of their motions.

The secondary planets move round about other planets. Besides the moon, which moves about the earth; four moons about Jupiter, and five about Saturn, which are called their satellites.

The middle distances of the primary planets from the sun are as follows:

Mercury	Is distant from the sun's centre, about	32,000,000	Statute miles, each 5280 English and 4943 French feet.
Venus		59,000,000	
The Earth		81,000,000	
Mars		123,000,000	
Jupiter		424,000,000	
Saturn		777,000,000	

The orbits of the planets, and their respective distances from the sun, and from one another, together with the orbit of a comet, may be seen in the figure of she solar system hereunto annexed.

The periodical times of each planet's revolution about the sun are as follows:

		Y.	D.	H.	M.
Mercury	Revolves about the Sun, in the space of	0	88	0	0
Venus,		0	225	0	0
The Earth		0	365	5	49
Mars		1	322	0	0
Jupiter		11	319	0	0
Saturn		29	138	0	0

The planets move round about the sun from west to east in the zodiac; or, to speak plainer, *are always* found amongst some of the stars of those

constellations, which make the twelve signs of the zodiac.

The motion of the planets about the sun is not perfectly circular, but rather elliptical. The reason of their motions in curve lines, is the attraction of the sun, or their gravitations towards the sun, (call it which you please); and an oblique or side-long impulse or motion.

These two motions or tendencies, the one always endeavouring to carry them in a straight line from the circle they move in, and the other endeavouring to draw them in a straight line to the sun, makes that curve line they revolve in.

The motion of the comets about the sun is in a very long slender oval; whereof one of the focusses is the centre of the sun, and the other very much beyond the sphere of Saturn.

The moon moves about the earth, as the earth does about the sun. So that it hath the centre of motion in the earth; as the earth hath the centre of its revolution in the sun, about which it moves.

The moon makes its synodical motion about the earth, in 29 days, 12 hours, and about 44 minutes.

It is full moon, when the earth being between the sun and the moon, we see all the enlightened part of the moon; new moon, when the moon being between us and the sun, its enlightened part is turned from us; and half moon, when the moon being in the quadratures, as the astronomers call it, we see but half the enlightened part.

An eclipse of the moon is, when the earth, being between the sun and the moon, hinders the light of the sun from falling upon, and being re-

flected by, the moon. If the light of the sun is kept off from the whole body of the moon, it is a total eclipse; if from a part only it is a partial one.

An eclipse of the sun is, when the moon, being between the sun and the earth, hinders the light of the sun from coming to us. If the moon hides from us the whole body of the sun, it is a total eclipse; if not, a partial one.

Our solar system is distant from the fixt stars 20,000,000,000 semi-diameters of the earth; or, as Mr. Huygens expresses the distance, in his Cosmotheoros: the fixt stars are so remote from the earth, that if a cannon-bullet should come from one of the fixt stars with as swift a motion as it hath when it is shot out of the mouth of a cannon, it would be 700,000 years in coming to the earth.

This vast distance so much abates the attraction to those remote bodies, that its operation upon those of our system, is not at all sensible, nor would draw away or hinder the return of any of our solar comets; though some of them should go so far from the sun, as not to make the revolution about it in less than 1000 years.

It is more suitable to the wisdom, power, and greatness of God, to think that the fixt stars are all of them suns, with systems of inhabitable planets moving about them, to whose inhabitants he displays the marks of his goodness as well as to us; rather than to imagine that those very remote bodies, so little useful to us, were made only for our sake.

CHAP. IV.

OF THE EARTH, CONSIDERED AS A PLANET.

THE earth, by its revolution about the sun in 365 days, 5 hours, 49 minutes, makes that space of time we call a year.

The line, which the centre of the earth describes in its annual revolution about the sun, is called ecliptic.

The annual motion of the earth about the sun, is in the order of the signs of the zodiac; that is, speaking vulgarly, from west to east.

Besides this annual revolution of the earth about the sun in the ecliptic, the earth turns round upon its own axis in 24 hours.

The turning of the earth upon its own axis every 24 hours, whilst it moves round the sun in a year, we may conceive by the running of a bowl on a bowling-green; in which not only the centre of the bowl hath a progressive motion on the green; but the bowl on its going forward, from one part of the green to another, turns round about its own axis.

The turning of the earth on its own axis, makes the difference of day and night; it being day on those parts of the earth which are turned towards the sun; and night in those parts which are in the shade, or turned from the sun.

The *annual revolution* of the earth in the ecliptic, *is the cause of* the different seasons, and of the

several lengths of days and nights, in every
the world, in the course of the year.

The reason of it, is the earth's going ro
own axis in the ecliptic but at the same time
ing every where its axis equally inclined
plane of the ecliptic, and parallel to itself.
the plane of the ecliptic inclining to the pl
the equator, 23 degrees and a half, makes tl
earth, moving round in the ecliptic, hath
times one of its poles, and sometimes the
nearer the sun.

If the diameter of the sun be to the diam
the earth, as 48 to 1, as by some it is acco
then the disk of the sun, speaking "num
tundo," is above 2000 times bigger than th
of the earth; and the globe of the sun is
100,000 times bigger than the globe of the

The distance of the earth's orbit from th
is above 200,000 semi-diameters of the earth

If a cannon-bullet should come from th
with the same velocity it hath when it is sh
of the mouth of a cannon, it would be 25 y
coming to the earth.

CHAP. V.

OF THE AIR AND ATMOSPHERE.

We have already considered the earth
planet, or one of the great masses of matter m
about the sun; we shall now consider it a
made up of its several parts, abstractedly fr
diurnal and annual motions.

The exterior part of this our habitable world is the air or atmosphere; a light, thin fluid, or springy body, that encompasses the solid earth on all sides.

The height of the atmosphere, above the surface of the solid earth, is not certainly known; but that it doth reach but to a very small part of the distance betwixt the earth and the moon, may be concluded from the refraction of the rays coming from the sun, moon, and ether luminous bodies.

Though considering that the air we are in, being near 1000 times lighter than the water; and that the higher it is, the less it is compressed by the superior incumbent air, and so consequently being a springy body the thinner it is; and considering also that a pillar of air of any diameter is equal in weight to a pillar of quicksilver of the same diameter of between 29 and 30 inches height; we may infer that the top of the atmosphere is not very near the surface of the solid earth.

It may be concluded, that the utmost extent of the atmosphere reaches upwards, from the surface of the solid earth that we walk on, to a good distance above us; first, if we consider that a column of air of any given diameter is equiponderant to a column of quicksilver of between 29 and 30 inches height. Now quicksilver being near 14 times heavier than water, if air was as heavy as water, the atmosphere would be about 14 times higher than the column of quicksilver, i. e. about 35 feet.

Secondly, if we consider that the air is 1000 times lighter than water, than a pillar of air equal in weight to a pillar of quicksilver of 30 inches high will be 35,000 feet, whereby we come to

know that the air or atmosphere is 35000 feet, i. e. near seven miles high.

Thirdly, if we consider that the air is a springy body, and that that, which is nearest the earth, is compressed by the weight of all the atmosphere that is above it, and rests perpendicularly upon it; we shall find that the air here, near the surface of the earth, is much denser and thicker than it is in the upper parts. For example, if upon a fleece of wool you lay another; the under one will be a little compressed by the weight of that which lies upon it; and so both of them by a third, and so on; so that if 10,000 were piled one upon another, the under one would by the weight of all the rest be very much compressed, and all the parts of it be brought abundantly closer together, than when there was no other upon it; and the next to that a little less compressed, the third a little less than the second, and so on till it came to the uppermost, which would be in its full expansion, and not compressed at all. Just so it is in the air; the higher you go in it, the less it is compressed, and consequently the less dense it is; and so the upper part being exceedingly thinner than the lower part, which we breathe in (which is that that is 1000 times lighter than water); the top of the atmosphere is probably much higher than the distance above assigned.

That the air near the surface of the earth will mightily expand itself, when the pressure of the incumbent atmosphere is taken off, may be abundantly seen in the experiments made by Mr. Boyle in his pneumatic engine. In his "Physico-mechanical Experiments," concerning the air, he *declares it* probable that the atmosphere may be

several hundred miles high; which is easy to be admitted, when we consider what he proves in another part of the same treatise, viz. that the air here about the surface of the earth, when the pressure is taken from it, will dilate itself about 152 times.

The atmosphere is the scene of the meteors; and therein is collected the matter of rain, hail, snow, thunder and lightning; and a great many other things observable in the air.

CHAP. VI.

OF METEORS IN GENERAL.

Besides the springy particles of pure air, the atmosphere is made up of several steams or minute particles of several sorts, rising from the earth and the waters, and floating in the air, which is a fluid body, and though much finer and thinner, may be considered in respect of its fluidity to be like water, and so capable, like other liquors, of having heterogenious particles floating in it.

The most remarkable of them are, first, the particles of water raised into the atmosphere, chiefly by the heat of the sun, out of the sea and other waters, and the surface of the earth; from whence it falls in dew, rain, hail, and snow.

Out of the vapours rising from moisture, the clouds are principally made.

Clouds do not consist wholly of watery parts; for, besides the aqueous vapours that are raised into the air, *there* are also sulphureous and saline

particles that are raised up, and in the clouds mixed with the aqueous particles, the effects whereof are sometimes very sensible; as particularly in lightning and thunder, when the sulphureous and nitrous particles firing break out with that violence of light and noise, which is observable in thunder, and very much resembles gun-powder.

That there are nitrous particles raised into the air is evident from the nourishment which rain gives to vegetables more than any other water; and also by the collection of nitre or salt-petre in heaps of earth, out of which it has been extracted, if they be exposed to the air, so as to be kept from rain; not to mention other efforts, wherein the nitrous spirit in the air shews itself.

Clouds are the greatest and most considerable of all the meteors, as furnishing matter and plenty to the earth. They consist of very small drops of water, and are elevated a good distance above the surface of the earth; for a cloud is nothing but a mist flying high in the air, as a mist is nothing but a cloud here below.

How vapours are raised into the air in invisible steams by the heat of the sun out of the sea and moist parts of the earth, is easily understood; and there is a visible instance of it in ordinary distillations. But how these steams are collected into drops, which bring back the water again, is not so easy to determine.

To those that will carefully observe, perhaps it will appear probable, that it is by that which the chymists call precipitation; to which it answers in all its parts.

The air may be looked on as a clear and pellucid menstruum, in which the insensible particles of dissolved matter float up and down, without being discerned, or troubling the pellucidity of the air; when on a sudden, as if it were by a precipitation, they gather into the very small but visible misty drops that make clouds.

This may be observed sometimes in a very clear sky, when, there not appearing any cloud, or any thing opake, in the whole horizon, one may see on a sudden clouds gather, and all the hemisphere overcast; which cannot be from the rising of the new aqueous vapours at that time, but from the precipitation of the moisture that in invisible particles floated in the air, into very small, but very visible drops, which by a like cause being united into great drops, they become too heavy to be sustained in the air, and so fall down in rain.

Hail seems to be the drops of rain frozen in their falling.

Snow is the small particles of water frozen before they unite into drops.

The regular figures, which branch out in flakes of snow, seem to show that there are some particles of salt mixed with the water, which makes them unite in certain angles.

The rainbow is reckoned one of the most remarkable meteors, though really it be no meteor at all; but the reflection of the sun-beams from the smallest drops of a cloud or mist, which are placed in a certain angle made by the concurrence of two lines, one drawn from the sun, and the other from the eye to these little drops in the cloud, which

reflect the sun-beams; so that two people, looking upon a rainbow at the same time, do not exactly see the same rainbow.

CHAP. VII.

OF SPRINGS, RIVERS, AND THE SEA.

PART of the water that falls down from the clouds, runs away upon the surface of the earth into channels, which convey it to the sea; and part of it is imbibed in the spungy shell of the earth, from whence sinking lower by degrees, it falls down into subteranean channels, and so under ground passes into the sea; or else, meeting with beds of rock or clay, it is hindered from sinking lower, and so breaks out in springs, which are most commonly in the sides, or at the bottom of hilly ground.

Springs make little rivulets: those united makes brooks: and those coming together makes rivers, which empty themselves into the sea.

The sea is a great collection of waters in the deep valleys of the earth. If the earth were all plain, and had not those deep hollows, the earth would be all covered with water; because the water, being lighter than the earth, would be above the earth, as the air is above the water.

The most remarkable thing in the sea is, that motion of the water called tides. It is a rising and falling of the water of the sea. The cause of *this is the* attraction of the moon, whereby the *part of the* water in the great ocean, which is

nearest the moon, being most strongly attracted, is raised higher than the rest; and the part opposite to it on the contrary side, being least attracted, is also higher than the rest. And these two opposite rises of the surface of the water in the great ocean, following the motion of the moon from east to west, and striking against the large coasts of the continents that lie in its way; from thence rebounds back again, and so make floods and ebbs in narrow seas, and rivers remote from the great ocean. Herein we also see the reason of the times of the tides, and why they so constantly follow the course of the moon.

CHAP. VIII.

OF SEVERAL SORTS OF EARTH, STONES, METALS, MINERALS, AND OTHER FOSSILS.

THIS solid globe we live upon is called the earth, though it contains in it a great variety of bodies, several whereof are not properly earth, which word, taken in a more limited sense, signifies such parts of this globe as are capable, being exposed to the air, to give rooting and nourishment to plants, so that they may stand and grow in it. With such earth as this, the greatest part of the surface of this globe is covered; and it is as it were the store-house, from whence all the living creatures of our world have originally their provisions; for from thence all the plants have their sustenance; and some few animals, and from these all the other animals.

Of *earth, taken in* thi sense, there are several

sorts, *v. g.* common mould, or garden earth, clay of several kinds, sandy soils.

Besides these, there is medicinal earth; as that which is called terra lemnia, bolus armena, and divers others.

After the several earths, we may consider the parts of the surface of this globe, which is barren; and such, for the most, are sand, gravel, chalk, and rocks, which produce nothing, where they have no earth mixt amongst them. Barren sands are of divers kinds, and consist of several little irregular stones without any earth; and of such there are great deserts to be seen in several parts of the world.

Besides these, which are most remarkable on the surface of the earth, there are found deeper, in this globe, many other bodies, which, because we discover by digging into the bowels of the earth, are called by one common name, fossils; under which are comprehended metals, minerals, or half metals, stones of divers kinds, and sundry bodies that have the texture between earth and stone.

To begin with those fossils which come nearest the earth; under this head we may reckon the several sorts of oker, chalk, that which they call black-lead, and other bodies of this kind, which are harder than earth, but have not the consistency and hardness of perfect stone.

Next to these may be considered stones of all sorts; whereof there is almost an infinite variety. Some of the most remarkable, either for beauty or use, are these: marble of all kinds, porphyry, granate, free-stone, &c. flints, agates, cornelians, *pebbles*, under which kind come the precious

stones, which are but pebbles of an excessive hardness, and when they are cut and polished, they have an extraordinary lustre. The most noted and esteemed are diamonds, rubies, amethysts, emeralds, topazes, opals.

Besides these we must not omit those which, though of not so much beauty, yet are of greater viz. loadstones, whetstones of all kinds, limestones, calamine, or lapis calaminaris, and abundance of others.

Besides these, there are found in the earth several sorts of salts, as eating or common salt, vitriol, sal gemma, and others.

The minerals, or semi-metals, that are dug out of the bowels of the earth, are antimony, cinnabar, zink, &c. to which may be added brimstone.

But the bodies of most use, that are sort for out of the depths of the earth, are the metals, which are distinguished from other bodies by their weight, fusibility, and malleableness; of which there are these sorts—gold, silver, copper, tin, lead, and, the most valuable of them all, iron; to which one may join that anomalous body quicksilver, or mercury.

He that desires to be more particularly informed concerning the qualities and properties of these subterraneous bodies, may consult natural historians and chymists.

What lies deeper towards the centre of the earth we know not, but a very little beneath the surface of this globe; and whatever we fetch from under ground is only what is lodged in the shell of the earth.

All stones, metals, and minerals, are real vege-

tables; that is, grow organically from proper seeds, as well as plants.

CHAP. IX.

OF VEGETABLES, OR PLANTS.

NEXT to the earth itself, we may consider those that are maintained on its surface; which, though they are fastened to it, yet are very distinct from it; and those are the whole tribe of vegetables or plants. These may be divided into three sorts, herbs, shrubs, and trees.

Herbs are those plants whose stalks are soft, and have nothing woody in them, as grass, sowthistle, and hemlock. Shrubs and trees have all wood in them; but with this difference, that shrubs grow not to the height of trees, and usually spread into branches near the surface of the earth; whereas trees generally shoot up in one great stem or body, and then at a good distance from the earth, spread into branches; thus gooseberries and currants are shrubs; oaks and cherries are trees.

In plants, the most considerable parts are these, the root, the stalk, the leaves, the flower, and the seed. There are very few of them that have not all these parts, though some there are that have no stalk; others that have no leaves; and others that have no flowers. But without seed or root I think there are none.

In vegetables, there are two things chiefly to be considered, their nourishment and propagation.

Their nourishment is thus: the small and tender fibres of the roots, being spread under ground, imbibe, from the moist earth, juice fit for their nourishment; this is conveyed by the stalk up into the branches, and leaves, through little, and, in some plants, imperceptible tubes, and from thence, by the bark, returns again to the root; so that there is in vegetables, as well as animals, a circulation of the vital liquor. By what impulse it is moved, is somewhat hard to discover. It seems to be from the difference of day and night, and other changes in the heat of the air; for the heat dilating, and the cold contracting those little tubes, supposing there be valves in them, it is easy to be conceived how the circulation is performed in plants, where it is not required to be so rapid and quick as in animals.

Nature has provided for the propagation of the species of plants several ways. The first and general is by seed. Besides this, some plants are raised from any part of the root set in the ground; others by new roots that are propagated from the the old, as in tulips; others by offsets, and in others, the branches set in the ground will take root and grow; and last of all, grafting inoculation, in certain sorts, are known ways of propagation. All these ways of increasing plants make one good part of the skill of gardening and from the books of gardeners may be best learnt.

CHAP. X.

OF ANIMALS.

THERE is another sort of creatures belonging to this our earth, rather as inhabitants than parts of it. They differ in this from plants, that they are not fixed to any one place, but have a freedom of motion up and down, and, besides, have sense to guide them in their motions.

Man and brute divide all the animals of this our globe.

Brutes may be considered as either aerial, terrestrial, aquatic, or amphibious. I call those aerial, which have wings, wherewith they can support themselves in the air. Terrestrial, are those, whose only place of rest is upon the earth. Aquatic, are those, whose constant abode is upon the water. Those are called amphibious, which live freely in the air upon the earth, and yet are observed to live long upon the water, as if they were natural inhabitants of that element; though it be worth the examination to know, whether any of those creatures that live at their ease, and by choice, a good while or at any time upon the earth, can live a long time together perfectly under water.

Aerial animals may be subdivided into birds, and flies.

Fishes, which are the chief part of aquatic animals, may be divided into shell-fishes, scaly fishes, *and* those that have neither apparent scales nor *shells.*

And the terrestrial animals may be divided into quadrupeds or beasts, reptiles, which have many feet, and serpents, which have no feet at all.

Insects, which in their several changes belong to several of the before-mentioned divisions, may be considered together as one great tribe of animals. They are called insects, from a separation in the middle of their bodies, whereby they are, as it were, cut into two parts, which are joined together by a small ligature; as we see in wasps, common flies, and the like.

Besies all these, there are some animals that are not perfectly of these kinds, but placed, as it were, in the middle betwixt two of them, by something of both; as bats, which have something of beasts and birds in them.

Some reptiles of the earth, and some of aquatics, want one or more of the senses, which are in perfecter animals; as worms, oysters, cockles, &c.

Animals are nourished by food, taken in at the mouth, digested in the stomach, and thence by fit vessels distributed over the whole body, as is described in books of anatomy.

The greatest part of animals have five senses, seeing, hearing, smelling, tasting, and feeling. These, and the way of nourishment of animals, we shall more particularly consider; because they are common to man with beasts.

The way of nourishment of animals, particularly of man, is by food taken in at the mouth, which being chewed there, is broken and mixed with the saliva, and thereby prepared for an easier and better digestion in the stomach.

When the stomach has performed its office upon the food, it protudes into the guts, by whose peristaltic motion its gently conveyed along through the guts, and, as it passes, the chyle, which is the nutritive part, is separated from the excrementitious, by the lacteal veins; and from thence conveyed into the blood, with which it circulates till itself be concocted into blood. The blood, being by the vena cava brought into the right ventricle of the heart, by the contraction of that muscle, is driven through the arteria pulmonaris into the lungs; where the constantly inspired air mixing with it, enlivens it; and from thence being conveyed by the vena pulmonaris into the left ventricle of the heart, the contraction of the heart forces it out, and, by the arteries, distributes it into all parts of the body; from whence it returns by the veins into the right ventricle of the heart, to take the same course again. This is called the circulation of the blood, by which life and heat are communicated to every part of the body.

In the circulation of the blood, a good part of it goes up into the head; and by the brains are separated from it, or made out of it, the animal spirits, which, by the nerves, impart sense and motion to all parts of the body.

The intruments of motion are the muscles; the fibres whereof contracting themselves, move the several parts of the body.

This contraction of the muscles is, in some of them, by the direction of the mind, and in some of them without it; which is the difference between voluntary and involuntary motions in the body.

CHAP. XI.

OF THE FIVE SENSES.

OF SEEING.

THE organ of seeing is the eye; consisting of riety of parts wonderfully contrived, for the ad- tting and refracting the rays of light; so that se that come from the same point of the object, d fall upon different parts of the pupil, are ought to meet again at the bottom of the eye, iereby the whole object is painted on the retina it is spread there.

That which immediately affects the sight, and oduces in us that sensation which we call seeing, light.

Light may be considered either, first, as it ra- ates from luminous bodies directly to our eyes; d thus we see luminous bodies themselves, as e sun, or a flame, &c. or secondly, as it is re- cted from other bodies; and thus we see a man, a picture, by the rays of light reflected from em to our eyes.

Bodies, in respect of light, may be divided into ree sorts; first, those that emit rays of light, as e sun and fixt stars; secondly, those that trans- t the rays of light, as the air; thirdly, those it reflect the rays of light, as iron, earth, &c. ie first are called luminous; the second pellucid; d third opake.

The rays of light themselves are not seen; but

by them the bodies, from which they originally come; as the sun, or a fixt star; or the bodies, from which they are reflected; as a horse, or a tulip. When the moon shines, we do not see the rays which come from the sun to the moon, but by them we see the moon, from whence they are reflected.

If the eye be placed in the medium, through which the rays pass to it, the medium is not seen at all; for instance, we do not see the air through which the rays come to our eyes. But if a pellucid body, through which the light comes, be at a distance from our eye, we see that body, as well as the bodies, from whence the rays come that pass through them to come to our eyes. For instance, we do not only see bodies through a pair of spectacles, but we see the glass itself. The reason whereof is, that pellucid bodies being bodies, the surfaces of which reflect some rays of light from their solid parts; these surfaces, placed at a convenient distance from the eye, may be seen by those reflected rays; as, at the same time, other bodies beyond those pellucid ones may be seen by the transmitted rays.

Opake bodies are of two sorts, specular or not specular. Specular bodies, or mirrors, are such opake bodies, whose surfaces are polished, whereby they, reflecting the rays in the same order as they come from other bodies, shew us their images.

The rays that are reflected from opake bodies, always bring with them to the eye the idea of colour; and this colour is nothing else, in the bodies, but a disposition to reflect to the eye more *copiously* one sort of rays than another. For par-

ticular rays are originally endowed with particular colours; some are red, others blue, others yellow, and others green, &c.

Every ray of light, as it comes from the sun, seems a bundle of all these several sorts of rays; and as some of them are more refrangible than others; that is, are more turned out of their course, in passing from one medium to another; it follows, that after such refraction they will be separated, and their distinct colour observed. Of these, the most refrangible are violet, and the least red; and the intermediate ones, in order, are indigo, blue, green, yellow, and orange. This separation is very entertaining, and will be observed with pleasure in holding a prism in the beams of the sun.

As all these rays differ in refrangibility, so they do in reflexibility; that is, in the property of being more easily reflected from certain bodies, than from others; and hence arise, as hath been said, all the colours of bodies; which are, in a manner, infinite, as an infinite number of compositions and proportions, of the original colours, may be imagined.

The whiteness of the sun's light is compounded of all the original colours, mixed in a due proportion.

Whiteness, in bodies, is but a disposition to reflect all colours of light, nearly in the proportion they are mixed in the original rays; as on the contrary, blackness is only a disposition to absorb or stifle, without reflection, most of the rays of every sort that fall on the bodies.

Light is successively propagated with an almost inconceivable swiftness! for it comes from the sun, to this our earth, in about seven or eight minutes of time, which distance is about 80,000,000 English miles.

Besides colour, we are supposed to see figure; but, in truth, that which we perceive when we see figure, as perceivable by sight, is nothing but the termination of colour.

OF HEARING.

NEXT to seeing, hearing is the most extensive of our senses. The ear is the organ of hearing whose curious structure is to be learnt from anatomy:

That which is conveyed into the brain by the air is called sound; though, in truth, till it come to reach and affect the perceptive part, it be nothing but motion. The motion, which produces in us the perception of sound, is a vibration of the air, caused by an exceeding short, but quick, tremulous motion of the body, from which it is propagated; and therefore we consider and denominate them as bodies sounding.

That sound is the effect of such a short, brisk and vibrating motion of bodies, from which it is propagated, may be known from what is observed and felt in the strings of instruments, and the trembling of bells, as long as we perceive any sound come from them; for as soon as that vibration *is* stopt, or ceases in them, the perception *ceases also.*

The propagation of sound is very quick, but not approaching that of light. Sounds move about 1140 English feet in a second of time; and in seven or eight minutes of time, they move about one hundred English miles.

OF SMELLING.

SMELLING is another sense, that seem to be wrought on by bodies at a distance; though that, which immediately affects the organ and produces in us the sensation of any smell, are effluvia, or invisible particles coming from bodies at a distance, immediately affect the olfactory nerves.

Smelling bodies seem perpetually to send forth effluvia, or steams, without sensibly wasting at all. Thus a grain of musk will send forth odoriferous particles for scores of years together, without its being spent; whereby one would conclude that these particles are very small; and yet it is plain, that they are much grosser than the rays of light, which have a free passage through glass; and and grosser also than the magnetic effluvia, which pass freely through all bodies, when those that produce smell will not pass through the thin membranes of a bladder, and many of them scarce ordinary white paper.

There is a great variety of smells, though we have but a few names for them; sweet, stinking, sour, rank, and musty, are almost all the denominations we have for odours; though the smell of a violet, and of musk, both called sweet, are as *distinct as any two smells* whatsoever.

OF TASTE.

TASTE is the next sense to be considered.

The organ of taste is the tongue and palate.

Bodies that emit light, sounds, and smells, are seen, heard, and smelt at a distance; but bodies are not tasted, but by immediate application to the organ; for till our meat touch our tongues, or palates, we taste it not, how near soever it be.

It may be observed of tastes, that though there be a great variety of them, yet, as in smells, they have only some few general names; as sweet, bitter, sour, harsh, rank, and some few others.

OF TOUCH.

THE fifth and last of our senses is touch; a sense spread over the whole body, though it be most eminently placed in the ends of the fingers.

By this sense the tangible qualities of bodies are discerned; as hard, soft, smooth, rough, dry, wet, clammy, and the like.

But the most considerable of the qualities, that are perceived by this sense, are heat and cold.

The due temperament of those two opposite qualities, is the great instrument of nature, that she makes use of in most, if not all, her productions.

Heat is a very brisk agitation of the insensible parts of the object, which produces in us that sensation, from whence we denominate the object

hot; so what in our sensation is heat, in the object is nothing but motion. This appears by the way whereby heat is produced; for we see that the rubbing of a brass nail upon a board will make it very hot, and the axle-trees of carts and coaches are often hot, and sometimes to a degree that it sets them on fire, by the rubbing of the nave of the wheel upon it.

On the other side, the utmost degree of cold is the cessation of that motion of the insensible particles which to our touch is heat.

Bodies are denominated hot and cold in proportion to the present temperament of that part of our body to which they are applied; so that feels hot to one, which seems cold to another; nay, the same body, felt by the two hands of the same man, may at the same time appear hot to the one, and cold to the other: because the motion of the insensible particles of it may be more brisk than that of the particles of the other.

Besides the objects before-mentioned, which are peculiar to each of our senses, as light, and colour of the sight; sound of hearing; odours of smelling; savours of tasting; and tangible qualities of the touch: there are two others that are common to all the senses, and those are pleasure and pain, which they may receive by and with their peculiar objects. Thus, too much light offends the eye; some sounds delight, and others grate the ear; heat in a certain degree is very pleasant, which may be augmented to the greatest torment; and so the rest.

These five senses are common to beasts with men; *nay, in some* of them, some brutes exceed *mankind. But* men are endowed with other fa-

culties, which far excel any thing that is to be found in the other animals of this our globe.

Memory also brutes may be supposed to have, as well as men.

CHAP. XII.

OF THE UNDERSTANDING OF MAN.

THE understanding of man does so surpass that of brutes, that some are of opinion brutes are mere machines, without any manner of perception at all. But letting this opinion alone, as ill-grounded, we will proceed to the consideration of human understanding, and the distinct operations thereof.

The lowest degree of it consists in perception, which we have before in part taken notice of, in our discourse of the senses. Concerning which it may be convenient farther to observe, that, to conceive a right notion of perception, we must consider the distinct objects of it, which are simple ideas; *v. g.* such are those signified by these words, scarlet, blue, sweet, bitter, heat, cold, &c. from the other objects of our senses, to which we may add the internal operations of our minds, as the objects of our own reflection, such as are thinking, willing, &c.

Out of these simple ideas are made, by putting them together, several compounded or complex ideas, as those signified by the words pebble, *marygold*, horse.

The next thing the understanding doth in its

progress to knowledge, is to abstract its ideas, by which abstraction they are made general.

A general idea is an idea in the mind, considered there as separated from time and place, and so capable to represent any particular being that is conformable to it. Knowledge, which is the highest degree of the speculative faculties, consists in the perception of the truth of affirmative or negative propositions.

This perception is either immediate or mediate. Immediate perception of the agreement or disagreement of two ideas, is when, by comparing them together in our minds, we see, or, as it were, behold their agreement or disagreement. This therefore is called intuitive knowledge. Thus we see that red is not green; that the whole is bigger than a part; and that two and two are equal to four.

The truth of these, and the like propositions, we know by a bare simple intuition of the ideas themselves, without any more ado; and such propositions are called self-evident.

The mediate perception of the agreement, or disagreement of two ideas, is when, by the intervention of one or more other ideas, their agreement, or disagreement, is shewn. This is called demonstration, or rational knowledge. For instance, the inequality of the breadth of two windows, or two rivers, or any two bodies that cannot be put together, may be known by the intervention of the same measure, applied to them both; and so it is in our general ideas, whose agreement or disagreement *may be often* shewn by the intervention of *some other ideas*, so as to produce demonstrative

knowledge; where the ideas in question cannot be brought together, and immediately compared, so as to produce intuitive knowledge.

The understanding doth not know only certain truth, but also judges of probability, which consists in the likely agreement or disagreement of ideas.

The assenting to any proposition as probable is called opinion, or belief.

We have hitherto considered the great and visible parts of the universe, and those great masses of matter, the stars, planets, and particularly this our earth, together with the inanimate parts, and animate inhabitants thereof; it may be now fit to consider what these sensible bodies are made of, and that is of unconceivably small bodies, or atoms, out of whose various combinations bigger moleculæ are made: and so, by a greater and greater composition, bigger bodies; and out of these the whole material world is constituted.

By the figure, bulk, texture, and motion, of these small and insensible corpuscles, all the phenomena of bodies may be explained.

A

DISCOURSE OF MIRACLES.

To discourse of miracles without defining what one means by the word miracle, is to make a shew, but in effect to talk of nothing.

A miracle then I take to be a sensible operation, which, being above the comprehension of the spectator, and in his opinion contrary to the established course of nature, is taken by him to be divine.

He that is present at the fact, is a spectator; he that believes the history of the fact, puts himself in the place of a spectator.

This definition, it is probable, will not escape these two exceptions:

1. That hereby what is a miracle is made very uncertain; for it depending on the opinion of the spectator, that will be a miracle to one which will not be so to another.

In answer to which, it is enough to say, that this objection is of no force, but in the mouth of one who can produce a definition of a miracle not liable to the same exception, which I think not easy to do; for it being agreed, that a miracle must be that which surpasses the force of nature in

the established, steady laws of causes and effects, nothing can be taken to be a miracle but what is judged to exceed those laws. Now every one being able to judge of those laws only by his own acquaintance with nature, and notions of its force (which are different in different men) it is unavoidable that that should be a miracle to one, which is not so to another

2. Another objection to this definition, will be, that the notion of a miracle thus enlarged, may come sometimes to take in operations that have nothing extraordinary or supernatural in them, and thereby invalidate the use of miracles for the attesting of divine revelation.

To which I answer, not at all, if the testimony which divine revelation receives from miracles be rightly considered.

To know that any revelation is from God, it is necessary to know that the messenger that delivers it is sent from God, and that cannot be known but by some credentials given him by God himself. Let us see then whether miracles, in my sense, be not such credentials, and will not infallibly direct us right in the search of divine revelation.

It is to be considered, that divine revelation receives testimony from no other miracles, but such as are wrought to witness his mission from God who delivers the revelation. All other miracles that are done in the world, how many or great soever, revelation is not concerned in. Cases wherein there has been, or can be need of miracles for the confirmation of revelation, are fewer than perhaps is imagined. The heathen world, amidst *an infinite* and uncertain jumble of deities, fables,

and worships, had no room for a divine attestation of any one against the rest. Those owners of many gods were at liberty in their worship; and no one of their divinities pretending to be the one only true God, no one of them could be supposed in the pagan scheme to make use of miracles to establish his worship alone, or to abolish that of the other; much less was there any use of miracles to confirm any articles of faith, since no one of them had any such to propose as necessary to be believed by their votaries. And therefore I do not remember any miracles recorded in the Greek or Roman writers, as done to confirm any one's mission and doctrine. Conformable hereunto we find St. Paul, 1 Cor. i. 22, takes notice that the Jews (it is true) required miracles, but as for the Greeks they looked after something else; they knew no need or use there was of miracles to recommend any religion to them. And indeed it is an astonishing mark how far the god of this world had blinded men's minds, if we consider that the gentile world received and stuck to a religion, which, not being derived from reason, had no sure foundation in revelation. They knew not its original, nor the authors of it, nor seemed concerned to know from whence it came, or by whose authority delivered; and so had no mention or use of miracles for its confirmation. For though there were here and there some pretences to revelation, yet there were not so much as pretences to miracles that attested it.

If we will direct our thoughts by what has been, we must conclude that miracles, as the credentials of a messenger delivering a divine religion, have

no place but upon a supposition of one only true God; and that it is so in the nature of the thing, and cannot be otherwise, I think will be made appear in the sequel of this discourse. Of such who have come in the name of the one only true God, professing to bring a law from him, we have in history a clear account but of three, viz. Moses, Jesus, and Mahomet. For what the Persees say of their Zoroaster, or the Indians of their Brama (not to mention all the wild stories of the religions farther east), is so obscure, or so manifestly fabulous, that no account can be made of it. Now of the three before mentioned, Mahomet having none to produce, pretends to no miracles for the vouching his mission; so that the only revelations that come attested by miracles, being those of Moses and Christ, and they confirming each other; the business of miracles, as it stands really in matter of fact, has no manner of difficulty in it; and I think the most scrupulous or sceptical cannot from miracles raise the least doubt against the divine revelation of the gospel.

But since the speculative and learned will be putting of cases which never were, and it may be presumed never will be; since scholars and disputants will be raising of questions where there are none, and enter upon debates whereof there is no need; I crave leave to say, that he who comes with a message from God to be delivered to the world, cannot be refused belief if he vouches his mission by a miracle, because his credentials *have a right* to it. For every rational thinking *man must* conclude as Nicodemus did, "we know

" that thou art a teacher come from God, for no " man can do these signs which thou doest, ex- " cept God be with him."

For example, Jesus of Nazareth professes himself sent from God: he with a word calms a tempest at sea. This one looks on as a miracle, and consequently cannot but receive his doctrine. Another thinks this might be the effect of chance, or skill in the weather, and no miracle, and so stands out; but afterwards seeing him walk on the sea, owns that for miracle and believes: which yet upon another has not that force, who suspects it may possibly be done by the assistance of a spirit. But yet the same person, seeing afterwards our Saviour cure an inveterate palsy by a word, admits that for a miracle, and becomes a convert. Another overlooking it in this instance, afterwards finds a miracle in his giving sight to one born blind, or in raising the dead, or his raising himself from the dead, and so receives his doctrine as a revelation coming from God. By all which it is plain, that where the miracle is admitted, the doctrine cannot be rejected; it comes with assurance of a divine attestation to him that allows the miracle, and he cannot question its truth.

The next thing then is, what shall be a sufficient inducement to take any extraordinary operation to be a miracle, *i. e.* wrought by God himself for the attestation of a revelation from him?

And to this I answer, the carrying with it the marks of a greater power than appears in opposition to it. For,

1. First, this removes the main difficulty where it presses hardest, and clears the matter from doubt,

when extraordinary and supernatural operations are brought to support opposite missions, about which methinks more dust has been raised by men of leisure than so plain a matter needed. For since God's power is paramount to all, and no opposition can be made against him with an equal force to his; and since his honour and goodness can never be supposed to suffer his messenger and truth to be borne down by the appearance of a greater power on the side of an impostor, and in favour of a lye; wherever there is an opposition, and two pretending to be sent from heaven clash, the signs, which carry with them the evident marks of a greater power, will always be a certain and unquestionable evidence, that the truth and divine mission are on that side on which they appear. For though the dicovery, how the lying wonders are or can be produced, be beyond the capacity of the ignorant, and often beyond the conception of the most knowing spectator, who is therefore forced to allow them in his apprehension to be above the force of natural causes and effects; yet he cannot but know they are not seals set by God to his truth for the attesting of it, since they are opposed by miracles that carry the evident marks of a greater and superior power, and therefore they cannot at all shake the authority of one so supported. God can never be thought to suffer that a lye, set up in opposition to a truth coming from him, should be backed with a greater power than he will shew for the confirmation and propagation of a doctrine which he has revealed, to the end it *might be* believed. The producing of serpents, *blood, and frogs*, by the Egyptian sorcerers and

by Moses, could not to the spectators but appear equally miraculous: which of the pretenders then had their mission from God, and the truth on their side, could not have been determined, if the matter had rested there. But when Moses's serpent eat up theirs, when he produced lice which they could not, the decision was easy. It was plain, Jannes and Jambres acted by an inferior power, and their operations, how marvellous and extraordinary soever, could not in the least bring in question Moses's mission, that stood the firmer for this opposition, and remained the more unquestionable after this, than if no such signs had been brought against it.

So likewise the number, variety, and greatness of the miracles wrought for the confirmation of the doctrine delivered by Jesus Christ, carry with them such strong marks of an extraordinary divine power, that the truth of his mission will stand firm and unquestionable, till any one rising up in opposition to him shall do greater miracles than he and his apostles did. For any thing less will not be of weight to turn the scales in the opinion of any one, whether of an inferior or more exalted understanding. This is one of those palpable truths and trials, of which all mankind are judges; and there needs no assistance of learning, no deep thought, to come to a certainty in it. Such care has God taken that no pretended revelation should stand in competition with what is truly divine, that we need but open our eyes to see and be sure which came from him. The marks of his over-ruling power accompany it; and therefore to this day we find, that wherever the gospel comes, it pre-

vails to the beating down the strong holds of Satan, and the dislodging the prince of the power of darkness, driving him away with all his lying wonders; which is a standing miracle, carrying with it the testimony of superiority.

What is the utmost power of natural agents or created beings, men of the greatest reach cannot discover; but that it is not equal to God's omnipotency, is obvious to every one's understanding; so that the superior power is an easy and sure guide to divine revelation, attested by miracles, where they are brought as credentials to an embassy from God.

And thus, upon the same grounds of superiority of power, uncontested revelation will stand too.

For the explaining of which, it may be necessary to premise,

1. That no mission can be looked on to be divine, that delivers any thing derogating from the honour of the one, only, true, invisible God, or inconsistent with natural religion and the rules of morality; because God having discovered to men the unity and majesty of his eternal godhead, and the truths of natural religion and morality by the light of reason, he cannot be supposed to back the contrary by revelation; for that would be to destroy the evidence and the use of reason, without which men cannot be able to distinguish divine revelation from diabolical imposture.

2. That it cannot be expected that God should send any one into the world on purpose to inform men of things indifferent, and of small moment, or that are knowable by the use of their natural faculties. This would be to lessen the dignity of his

majesty in favour of our sloth, and in prejudice to our reason.

3. The only case then wherein a mission of any one from heaven can be reconciled to the high and awful thoughts men ought to have of the Deity, must be the revelation of some supernatural truths relating to the glory of God, and some great concern of men. Supernatural operations attesting such a revelation may with reason be taken to be miracles, as carrying the marks of a superior and over-ruling power, as long as no revelation accompanied with marks of a greater power appears against it. Such supernatural signs may justly stand good, and be received for divine, *i. e.* wrought by a power superior to all, till a mission attested by operations of a greater force shall disprove them: because it cannot be supposed God should suffer his prerogative to be so far usurped by an inferior being, as to permit any creature, depending on him, to set his seals, the marks of his divine authority, to a mission coming from him. For these supernatural signs being the only means God is conceived to have to satisfy men as rational creatures of the certainty of any thing he would reveal, as coming from himself, can never consent that it should be wrested out of his hands, to serve the ends and establish the authority of an inferior agent that rivals him. His power being known to have no equal, always will, and always may be safely depended on, to show its superiority in vindicating his authority, and maintaining every truth that he has revealed. So that the marks of a superior power accompanying it, always have been, and always will be a visible and sure guide to di-

vine revelation; by which men may conduct themselves in their examining of revealed religions, and be satisfied which they ought to receive as coming from God; though they have by no means ability precisely to determine what is, or is not above the force of any created being; or what operations can be performed by none but a divine power, and require the immediate hand of the Almighty. And therefore we see it is by that our Saviour measures the great unbelief of the Jews, John xv. 24, saying, "If I had not done among them the works "which no other man did, they had not had sin; "but now have both seen and hated both me and "my father;" declaring, that they could not but see the power and presence of God in those many miracles he did, which were greater than ever any other man had done. When God sent Moses to the children of Israel with a message, that now according to his promise he would redeem them by his hand out of Egypt, and furnished him with signs and credentials of his mission; it is very remarkable what God himself says of those signs, Exod. iv. 8, "And it shall come to pass, if they "will not believe thee, nor hearken to the voice "of the first sign," (which was turning his rod into a serpent,) that "they will believe the voice "of the latter sign," (which was the making his hand leprous by putting it in his bosom). God farther adds, v. 9, "And it shall come to pass, if "they will not believe also these two signs, nei-"ther hearken unto thy voice, that thou shalt take "of the water of the river and pour upon the "dry land; and the water which thou takest out "of the river shall become blood upon the dry

" land." Which of those operations was or was not above the force of all created beings, will, I suppose, be hard for any man, too hard for a poor brick-maker, to determine; and therefore the credit and certain reception of the mission, was annexed to neither of them, but the prevailing of their attestation was heightened by the increase of their number; two supernatural operations shewing more power than one, and three more than two. God allowed it was natural, that the marks of greater power should have a greater impression on the minds and belief of the spectators. Accordingly the Jews, by this estimate, judged of the miracles of our Saviour, John vii. 31, where we have this account, " And many of the " people believed on him, and said, When Christ " cometh, will he do more miracles than these " which this man hath done?" This, perhaps, as it is the plainest, so it is also the surest way to preserve the testimony of miracles in its due force to all sorts and degrees of people. For miracles being the basis on which divine mission is always established, and consequently that foundation on which the believers of any divine revelation must ultimately bottom their faith, this use of them would be lost, if not to all mankind, yet at least to the simple and illiterate, (which is the far greatest part,) if miracles be defined to be none but such divine operations as are in themselves beyond the power of all created beings, or at least operations contrary to the fixed and established laws of nature. For as to the latter of those, what are the fixed and established laws of nature, philosophers alone, if at least they, can

pretend to determine. And if they are operations performable only by divine po doubt whether any man, learned or unlearne in most cases be able to say of any particul ration, that can fall under his senses, tha certainly a miracle. Before he can come certainty, he must know, that no created has a power to perform it. We know goc bad angels have abilities and excellencies e ingly beyond all our poor performances or i comprehensions. But to define what is the extent of power that any of them has, is undertaking of a man in the dark, tha nounces without seeing, and sets bounds narrow cell to things at an infinite distanc his model and comprehension.

Such definitions therefore of miracles, hc specious in discourse and theory, fail us wh come to use, and an application of them in cular cases. 1701—2.

" These thoughts concerning miracles, " occasioned by my reading Mr. Fleet " Essay on Miracles, and the letter writ " on that subject. The one of them defi " miracle to be an extraordinary operatic " formable by God alone: and the other v " of miracles without any definition of a r " at all."

J. LOC

MISCELLANEOUS.

AFFECTATION.

AFFECTATION is not, I confess, an early ilt of childhood, or the product of untaught na-e: it is of that sort of weeds, which grow not the wild uncultivated waste, but in garden plots, der the negligent hand, or unskilful care of a rdener. Management and instruction, and some ıse of the necessity of breeding, are requisite to ıke any one capable of affectation, which en-avours to correct natural defects, and has always ɜ laudable aim of pleasing, though it always sses it; and the more it labours to put on grace-ness, the farther it is from it. For this reason it the more carefully to be watched, because it is ɜ proper fault of education; a perverted educa-ın indeed, but such as young people often fall to, either by their own mistake, or the ill con-ıct of those about them.

He that will examine wherein that gracefulness s, which always pleases, will find it arises from at natural coherence, which appears between e thing done, and such a temper of mind, as nnot but be approved of as suitable to the occa-ın. We cannot but be pleased with an humane,

friendly, civil temper, wherever we meet with it. A mind free and master of itself and all its actions, not low and narrow, not haughty and insolent, not blemished with any great defect; is what every one is taken with. The actions, which naturally flow from such a well-formed mind, please us also, as the genuine marks of it; and being, as it were, natural emanations from the spirit and disposition within, cannot but be easy and unconstrained. This seems to me to be that beauty, which shines through some men's actions, sets off all that they do, and takes with all they come near; when by a constant practice they have fashioned their carriage, and made all those little expressions of civility and respect, which nature or custom has established in conversation, so easy to themselves, that they seem not artificial or studied, but naturally to follow from a sweetness of mind and a well-turned disposition.

On the other side, affectation is an awkward and enforced imitation of what should be genuine and easy; wanting the beauty that accompanies what is natural; because there is always a disagreement between the outward action, and the mind within, one of these two ways: 1. Either when a man would outwardly put on a disposition of mind, which then he really has not, but endeavours by a forced carriage to make show of; yet so, that the constraint he is under, discovers itself: and thus men affect sometimes to appear sad, merry, or kind, when, in truth, they are not so.

2. The other is, when they do not endeavour to *make show* of dispositions of mind which they have *not, but* to express those they have by a carriage

not suited to them: and such in conversation are all constrained motions, actions, words or looks, which, though designed to show either their respect or civility to the company, or their satisfaction and easiness in it, are not yet natural nor genuine marks of the one or the other; but rather of some defect or mistake within. Imitation of others, without discerning what is graceful in them, or what is peculiar to their characters, often makes a great part of this. But affectation of all kinds, whencesoever it proceeds, is always offensive: because we naturally hate whatever is counterfeit; and condemn those who have nothing better to recommend themselves by.

Plain and rough nature, left to itself, is much better than an artificial ungracefulness, and such studied ways of being ill-fashioned. The want of an accomplishment, or some defect in our behaviour, coming short of the utmost gracefulness, often escapes observation and censure. But affectation in any part of our carriage, is lighting up a candle to our defects; and never fails to make us be taken notice of, either as wanting sense, or wanting sincerity. This governors ought the more diligently to look after, because, as I above observed, it is an acquired ugliness, owing to mistaken education; few being guilty of it, but those who pretend to breeding, and would not be thought ignorant of what is fashionable and becoming in conversation; and, if I mistake not, it has often its rise from the lazy admonitions of those who give rules, and propose examples, without joining practice with their instructions, and making their pupils *repeat* the action in their sight, that they

may correct what is indecent or constrained in it, till it be perfected into an habitual and becoming easiness.

ATHEISM.

"THAT God is to be worshipped," is, without doubt, as great a truth as any can enter into the mind of man, and deserves the first place amongst all practical principles. But yet it can by no means be thought innate, unless the ideas of God and worship are innate. That the idea the term worship stands for, is not in the understanding of children, and a character stamped on the mind in its first original, I think, will be easily granted, by any one that considers how few there be, amongst grown men, who have a clear and distinct notion of it. And, I suppose, there cannot be any thing more ridiculous, than to say that children have this practical principle innate, "that God is to be worshipped;" and yet, that they know not what that worship of God is, which is their duty. But to pass by this:

If any idea can be imagined innate, the idea of God may, of all others, for many reasons be thought so; since it is hard to conceive, how there should be innate moral principles, without an innate idea of a Deity: without a notion of a law-maker, it is impossible to have a notion of a law, and an obligation to observe it. Besides the atheists, taken notice of amongst the ancients, and left branded upon the records of history, hath not navigation discover-

ed, in these later ages, whole nations at the Bay of Soldania, in Brazil, in Boranday, and in the Caribbee islands, &c. amongst whom there was to be found no notion of a God, or religion? Nicholaus del Techo, in literis, ex Paraquaria de Caaiguarum conversione, has these words: "Re- "peri eam gentem nullum nomen habere, quod "Deum & hominis animam significet, nulla sacra "habet, nulla idola." These are instances of nations where uncultivated nature has been left to itself, without the help of letters, and discipline, and the improvement of arts and sciences. But there are others to be found, who have enjoyed these in a very great measure; who, yet for want of a due application of their thoughts this way, want the idea and knowledge of God. It will, I doubt not, be a surprize to others, as it was to me, to find the Siamites of this number. But for this, let them consult the King of France's late envoy thither, who gives no better account of the Chinese themselves. And if we will not believe La Loubere, the missionaries of China, even the Jesuits themselves, the great encomiasts of the Chinese, do all to a man agree, and will convince us that the sect of the literati, or learned, keeping to the old religion of China, and the ruling party there, are all of them atheists. Vid. Navarette, in the collection of voyages, vol. the first, and Historia cultus Sinensium. And perhaps, if we should, with attention, mind the lives and discourses of people not so far off, we should have too much reason to fear, that many in more civilized countries have no very strong and clear impressions *of a deity* upon their minds; and that the

complaints of atheism, made from the pulpit, are not without reason. And though only some profligate wretches own it too bare-facedly now; yet perhaps we should hear more than we do of it from others, did not the fear of the magistrate's sword, or their neighbour's censure, tie up people's tongues: which, were the apprehensions of punishment or shame taken away, would as openly proclaim their atheism, as their lives do.

But had all mankind, every where, a notion of a God (whereof yet history tells us the contrary) it would not from thence follow, that the idea of him was innate. For though no nation were to be found without a name, and some few dark notions of him, yet that would not prove them to be natural impressions on the mind, any more than the names of fire, or the sun, heat, or number, do prove the ideas they stand for to be innate; because the names of those things, and the ideas of them, are so universally received and known amongst mankind. Nor, on the contrary, is the want of such a name, or the absence of such a notion out of men's minds, any argument against the being of a God; any more than it would be a proof that there was no loadstone in the world, because a great part of mankind had neither a notion of any such thing, nor a name for it; or be any show of argument to prove, that there are no distinct and various species of angels, or intelligent beings above us, because we have no ideas of such distinct species, or names for them; for men being furnished with words, by the common *language* of their own countries, can scarce avoid *having* some kind of ideas of those things, whose

names those they converse with, have occasion frequently to mention to them. And if they carry with it the notion of excellency, greatness, or something extraordinary; if apprehension and concernment accompany it; if the fear of absolute and irresistible power set it upon the mind, the idea is likely to sink the deeper, and spread the farther: especially if it be such an idea as is agreeable to the common light of reason, and naturally deducible from every part of our knowledge, as that of a God is. For the visible marks of extraordinary wisdom and power appear so plainly in all the works of the creation, that a rational creature, who will but seriously reflect on them, cannot miss the discovery of a deity. And the influence that the discovery of such a being must necessarily have on the minds of all that have but once heard of it, is so great, and carries such a weight of thought and communication with it, that it seems stranger to me, that a whole nation of men should be any where found so brutish, as to want the notion of a God; than that they should be without any notion of numbers or fire.

BREEDING.

One good quality belonging to a gentleman, is good breeding. There are two sorts of ill-breeding; the one, a sheepish bashfulness; and the other, a misbecoming negligence and disrespect in our carriage; *both which* are avoided, by duly observ-

ing this one rule, Not to think meanly of ourselves, and not to think meanly of others.

The first part of this rule must not be understood in opposition to humility, but to assurance. We ought not to think so well of ourselves, as to stand upon our own value; and to assume to ourselves a preference before others, because of any advantage we may imagine we have over them; but modestly to take what is offered, when it is our due. But yet we ought to think so well of ourselves, as to perform those actions which are incumbent on, and expected of us, without discomposure or disorder, in whose presence soever we are, keeping that respect and distance which is due to every one's rank and quality. There is often in people, especially in children, a clownish shamefacedness before strangers, or those above them; they are confounded in their thoughts, words, and looks, and so lose themselves in that confusion, as not be able to do any thing, or at least not to do it with that freedom and gracefulness which pleases and make them acceptable. The only cure for this, as for any other miscarriage, is by use to introduce the contrary habit. But since we cannot accustom ourselves to converse with strangers, and persons of quality, without being in their company, nothing can cure this part of ill-breeding, but change and variety of company, and that of persons above us.

As the before-mentioned consists in too great a concern how to behave ourselves before others, so the other part of ill-breeding lies in the appearance *of too little* care of pleasing or showing respect to *those* we have to do with. To avoid this, these

two things are requisite: first, a disposition of the mind no to offend others: and, secondly, the most acceptable and agreeable way of expressing that disposition. From the one, men are called civil; from the other, well-fashioned. The latter of these is that decency and gracefulness of looks, voice, words, motions, gestures, and of all the whole outward demeanor, which takes in company, and makes those with whom we may converse easy and well-pleased. This is, as it were, the language, whereby that internal civility of the mind is expressed; which, as other languages are, being very much governed by the fashion and custom of every country, must, in the rules and practice of it, be learned chiefly from observation, and the carriage of those who are allowed to be exactly well-bred. The other part, which lies deeper than the outside, is that general good-will and regard for all people, which makes any one have a care not to shew, in his carriage, any contempt, disrespect, or neglect of them; but to express, according to the fashion and way of that country, a respect and value for them, according to their rank and condition. It is a disposition of the mind that shews itself in the carriage, whereby a man avoids making any one uneasy in conversation.

I shall take notice of four qualities that are most directly opposite to this first and most taking of all the social virtues. And from some one of these four it is, that incivility commonly has its rise. I shall set them down, that children may be preserved or recovered from their ill influence.

1. The *first is*, a natural roughness, which

makes a man uncomplaisant to others, so that he has no deference for their inclinations, tempers, or conditions. It is the sure badge of a clown, not to mind what pleases or displeases those he is with; and yet one may often find a man in fashionable clothes, give an unbounded swing to his own humour, and suffer it to justle or over-run any one that stands in its way, with a perfect indifferency how they take it. This is a brutality that every one sees and abhors, and nobody can be easy with: and therefore this finds no place in any one, who would be thought to have the least tincture of good-breeding. For the very end and business of good-breeding is to supple the natural stiffness, and so soften men's tempers, that they may bend to a compliance, and accommodate themselves to those they have to do with.

2. Contempt, or want of due respect, discovered either in looks, words, or gesture: this, from whomsoever it comes, brings always uneasiness with it; for nobody can contentedly bear being slighted.

3. Censoriousness, and finding fault with others, has a direct opposition to civility. Men, whatever they are or are not guilty of, would not have their faults, displayed, and set in open view and broad day-light, before their own, or other people's eyes. Blemishes affixed to any one, always carry shame with them: and the discovery, or even bare imputation of any defect, is not borne without some uneasiness. Raillery is the most refined way of exposing the faults of others; but, because it is *usually* done with wit and good language, and *gives* entertainment to the company, people are

led into a mistake, and where it keeps within fair bounds, there is no incivility in it: and so the pleasantry of this sort of conversation often introduces it amongst people of the better rank; and such talkers are favourably heard, and generally applauded by the laughter of the by-standers on their side: but they ought to consider, that the entertainment of the rest of the company is at the cost of that one, who is set out in their burlesque colours, who therefore is not without uneasiness, unless the subject, for which he is rallied, be really in itself matter of commendation; for then the pleasant images and representations, which make the raillery, carrying praise as well as sport with them, the rallied person who finds his account, and takes part in the diversion. But, because the nice management of so nice and ticklish a business, wherein a little slip may spoil all, is not every body's talent, I think those who would secure themselves from provoking others, especiall young people, should carefully abstain from raillery; which, by a small mistake, or any wrong turn, may leave upon the mind of those, who are made uneasy by it, the lasting memory of having been piquantly, though wittily taunted for something censurable in them.

Besides raillery, contradiction is a kind of censoriousness, wherein ill-breeding often shows itself. Complaisance does not require that we should always admit all the reasonings or relations that the company is entertained with; no, nor silently let pass all that is vented in our hearing. The opposing the opinions, and rectifying the mistakes of others, *is what truth* and charity sometimes re-

quire of us, and civility does not oppose, if it be done with due caution and care of circumstances. But there are some people, that one may observe possessed, as it were, with the spirit of contradiction, that steadily, and without regard to right or wrong, oppose some one, or perhaps every one of the company, whatever they say. This is so visible and outrageous a way of censuring, that nobody can avoid thinking himself injured by it. All opposition to what another man has said, is so apt to be suspected of censoriousness, and is so seldom received without some sort of humiliation, that it ought to be made in the gentlest manner, and softest words can be found; and such as, with the whole deportment, may express no forwardness to contradict. All marks of respect and good-will ought to accompany it, that, whilst we gain the argument, we may not lose the esteem of those that hear us.

4. Captiousness is another fault opposite to civility, not only because it often produces misbecoming and provoking expressions and carriage, but because it is a tacit accusation and reproach of some incivility, taken notice of in those whom we are angry with. Such a suspicion, or intimation, cannot be borne by any one without uneasiness. Besides, one angry body discomposes the whole company, and the harmony ceases upon any such jarring.

The happiness that all men so steadily pursue, consisting in pleasure, it is easy to see why the civil are more acceptable than the useful. The *ability*, sincerity, and good intention of a man of *weight* and worth, or a real friend, seldom atones

for the uneasiness that is produced, by his grave and solid representations. Power and riches, nay virtue itself, are valued only as conducing to our happiness; and therefore he recommends himself ill to another, as aiming at his happiness, who, in the services he does him, makes him uneasy in the manner of doing them. He that knows how to make those he converses with easy, without debasing himself to low and servile flattery, has found the true art of living in the world, and being both welcome and valued every-where. Civility therefore is what, in the first place, should with great care be made habitual to children and young people.

There is another fault in good manners, and that is excess of ceremony, and an obstinate persisting to force upon another what is not his due, and what he cannot take without folly or shame, This seems rather a design to expose, than oblige; or, at least, looks like a contest for mastery; and, at best, is but troublesome, and so can be no part of good breeding, which has no other use or end, but to make people easy and satisfied in their conversation with us. This is a fault few young people are apt to fall into; but yet, if they are ever guilty of it, or are suspected to incline that way, they should be told of it, and warned of this mistaken civility. The thing they should endeavour and aim at in conversation, should be to shew respect, esteem, and good-will, by paying to every one that common ceremony and regard, which is in civility due to them. To do this, without a suspicion of flattery, dissimulation, or meaness, is a great skill, which good sense, reason-

and good company, can only teach; but is of so much use in civil life, that it is well worth the studying.

Though the managing ourselves well in this part of our behaviour has the name of good-breeding, as if peculiarly the effect of education; yet, as I have said, young children should not be much perplexed about it; I mean, about putting off their hats, and making legs modishly. Teach them humility, and to be good-natured, if you can, and this sort of manners will not be wanting: civility being, in truth, nothing but a care not to show any slighting or contempt, of any one in conversation. What are the most allowed and esteemed ways of expressing this, we have above observed. It is as peculiar and different, in several countries of the world, as their languages; and therefore, if it be rightly considered, rules and discourses made to children about it, are as useless and impertinent, as it would be, now and then, to give a rule or two of the Spanish tongue, to one that converses only with Englishmen. Be as busy as you please with discourses of civility to your son; such as is his company, such will be his manners. A ploughman of your neighbourhood, that has never been out of his parish, read what lectures you please to him, will be as soon in his language as his courage a courtier; that is, in neither will be more polite, than those he uses to converse with: and therefore of this no other care can be taken, till he be of an age to have a tutor put to him, who must not fail to be a well-bred man. And, in good earnest, if I were to speak my mind freely, so children do nothing out of obstinacy, pride, and ill-nature, it

is no great matter how they put off their hats, or make legs. If you can teach them to love and respect other people, they will, as their age requires it, find ways to express it acceptably to every one, according to the fashions they have been used to: and as to their motions, and carriage of their bodies, a dancing-master, as has been said, when it is fit, will teach them what is most becoming. In the mean time, when they are young, people expect not that children should be over-mindful of these ceremonies; carelessness is allowed to that age, and becomes them as well as compliments do grown people: or, at least, if some very nice people will think it a fault, I am sure it is a fault that should be over-looked, and left to time, a tutor, and conversation, to cure: and therefore I think it not worth your while to have your son (as I often see children are) molested or chid about it; but where there is pride, or ill-nature, appearing in his carriage, there he must be persuaded or shamed out of it.

Though children, when little, should not be much perplexed with rules and ceremonious parts of breeding; yet there is a sort of unmannerliness very apt to grow up with young people, if not early restrained; and that is, a forwardness to interrupt others that are speaking, and to stop them with some contradiction. Whether the custom of disputing, and the reputation of parts and learning usually given to it, as if it were the only standard and evidence of knowledge, make young men so forward to watch occasions to correct others in their discourse, and not slip any opportunity *of shewing* their talents; so it is, that I

have found scholars most blamed in this point. There cannot be a greater rudeness, than to interrupt another in the current of his discourse; for, if their be not impertinent folly in answering a man before we know what he will say, yet it is a plain declaration, that we are weary to hear him talk any longer; and have a disesteem for what he says; which we, judging not fit to entertain the company, desire them to give audience to us, who have something to produce worth their attention. This shows a very great disrespect, and cannot but be offensive; and yet, this is what almost all interruption constantly carries with it. To which, if there be added, as is usual, a correcting of any mistake, or a contradiction of what has been said, it is a mark of yet greater pride and self-conceitedness, when we thus intrude ourselves for teachers, and take upon us, either to set another right in his story, or shew the mistakes of his judgment.

I do not say this, that I think there should be no difference of opinions in conversation, nor opposition in men's discourses: this would be to take away the greatest advantage of society, and the improvements that are to be made by ingenious company; where the light is to be got from the opposite arguings of men of parts, shewing the different sides of things, and their various aspects and probabilities, if every one were obliged to assent to, and say after the first speaker. It is not the owning one's dissent from another that I speak *against*, but the manner of doing it. Young men *should* be taught not to be forward to interpose *their opinions*, unless asked, or when others have

done, and are silent; and then only by way of inquiry, not instruction. The positive asserting, and magisterial air, should be avoided; and when a general pause of the whole company affords an opportunity, they may modestly put in their question as learners.

This becoming decency will not cloud their parts, nor weaken the strength of their reason; but bespeak the more favourable attention, and give what they say the greater advantage. An ill argument, or ordinary observation, thus introduced, with some civil preface of deference and respect to the opinions of others, will procure them more credit and esteem; than the sharpest wit, or profoundest science, with a rough, insolent, or noisy management; which always shocks the hearers, and leaves an ill opinion of the man, though he get the better of it in the argument.

This therefore should be carefully watched in young people, stopped in the beginning, and the contrary habit introduced in all their conversation: and the rather, because forwardness to talk, frequent interruptions in arguing, and loud wrangling, are too often observable amongst grown people, even of rank amongst us. The indians, whom we call barbarous, observe much more decency and civility in their discourses and conversation, giving one another a fair silent hearing, till they have quite done; and then answering them calmly, and without noise or passion. And if it be not so in this civilized part of the world, we must impute it to a neglect in education, which has not yet reformed this ancient piece of barbarity *amongst us.* *Was it* not, think you, an entertain-

ing spectacle, to see two ladies of quality accidentally seated on the opposite sides of a room, set round with company, fall into a dispute, and grow so eager in it, that in the heat of their controversy, edging by degrees their chairs forwards, they were in a little time got up close to one another in the middle of the room, where they for a good while managed the dispute as fiercely as two gamecocks in the pit, without minding or taking any notice of the circle, which could not all the while forbear smiling? This I was told by a person of quality, who was present at the combat, and did not omit to reflect upon the indecencies that warmth in dispute often runs people into; which, since custom makes too frequent, education should take the more care of. There is nobody but condemns this in others, though they overlook it in themselves: and many, who are sensible of it in themselves, and resolve against it, cannot yet get rid of an ill-custom, which neglect in their education has suffered to settle into an habit.

CRUELTY.

ONE thing I have frequently observed in children, that, when they have got possession of any poor creature, they are apt to use it ill; they often torment and treat very roughly young birds, butterflies, and such other poor animals, which fall into their hands, and that with a seeming kind of pleasure. This, I think, should be watched in

them; and if they incline to any such cruelty, they should be taught the contrary usage; for the custom of tormenting and killing of beasts will, by degrees, harden their minds even towards men; and they who delight in the sufferings and destruction of inferior creatures, will not be apt to be very compassionate or benign to those of their own kind. Our practice takes notice of this, in the exclusion of butchers from juries of life and death. Children should from the beginning be bred up in an abhorrence of killing or tormenting any living creature, and be taught not to spoil or destroy any thing unless it be for the preservation or advantage of some other that is nobler. And truly, if the preservation of all mankind, as much as in him lies, were every one's persuasion, as indeed it is every one's duty, and the true principal to regulate our religion, politics, and morality by, the world would be much quieter, and better-natured, than it is. But to return to our present business; I cannot but commend both the kindness and prudence of a mother I knew, who was wont always to indulge her daughters, when any of them desired dogs, squirrels, birds, or any such things, as young girls use to be delighted with: but then, when they had them, they must be sure to keep them well, and look diligently after them, that they wanted nothing, or were not ill used; for, if they were negligent in their care of them, it was counted a great fault, which often forfeited their possession; or at least they failed not to be rebuked for it, whereby they were early taught diligence and good-nature. And indeed I think *people should be* accustomed, from their cradles,

to be tender to all sensible creatures, and to spoil or waste nothing at all.

This delight they take in doing of mischief (whereby I mean spoiling of any thing to no purpose, but more especially the pleasure they take to put any thing in pain that is capable of it) I cannot persuade myself to be any other than a foreign and introduced disposition, an habit borrowed from custom and conversation. People teach children to strike, and laugh when they hurt, or see harm come to others; and they have the examples of most about them to confirm them in it. All the entertainment of talk and history is of nothing almost but fighting and killing; and the honour and renown that is bestowed on conquerors (who for the most part are but the great butchers of mankind) farther mislead growing youths, who by this means come to think slaughter the laudable business of mankind, and the most heroic of virtues. By these steps unnatural cruelty is planted in us; and what humanity abhors, custom reconciles and recommends to us, by laying it in the way to honour. Thus, by fashion and opinion, that comes to be a pleasure, which in itself neither is, nor can be any. This ought carefully to be watched, and early remedied, so as to settle and cherish the contrary and more natural temper of benignity and compassion in the room of it; but still by the same gentle methods, which are to be applied to the other two faults before mentioned. It may not perhaps be unreasonable here to add this farther caution, viz. that the mischiefs or *harms that* come by play, inadvertency, or ignorance, and were not known to be harms, or de

signed for mischief's sake, though they may perhaps be sometimes of considerable damage, yet are not at all, or but very gently, to be taken notice of. For this, I think, I cannot too often inculcate, that whatever miscarriage a child is guilty of, and whatever be the consequence of it, the thing to be regarded in taking notice of it, is only what root it springs from, and what habit it is like to establish; and to that the correction ought to be directed, and the child not to suffer any punishment for any harm which may have come by his play or inadvertency. The faults to be amended lie in the mind; and if they are such as either age will cure, or no ill habits will follow from, the present action, whatever displeasing circumstances it may have, is to be passed by without any animadversion.

Another way to instil sentiments of humanity, and to keep them lively in young folks, will be, to accustom them to civility, in their language and deportment towards their inferiors, and the meaner sort of people, particularly servants. It is not unusual to observe the children, in gentlemen's families, treat the servants of the house with domineering words, names of contempt, and an imperious carriage; as if they were of another race, and species beneath them. Whether ill example, the advantage of fortune, or their natural vanity, inspire this haughtiness, it should be prevented, or weeded out; and a gentle, courteous, affable carriage towards the lower ranks of men, placed in the room of it. No part of their superiority will be hereby

lost, but the distinction increased, and their a thority strengthened, when love in inferiors joined to outward respect, and an esteem of t person has a share in their submission; and dom tics will pay a more ready and chearful servi when they find themselves not spurned, becau fortune has laid them below the level of others, their master's feet. Children should not be s fered to lose the consideration of humane nat in the shufflings of outward conditions: the m they have, the better-humoured they ſhould taught to be, and the more compassionate s gentle to those of their brethren, who are pla lower, and have scantier portions. If they suffered from their cradles to treat men ill and ru ly, because, by their father's title, they think t have a little power over them; at best it is ill-bre and, if care be not taken, will, by degrees, nu up their natural pride into an habitual contempt those beneath them: and where will that proba end, but in oppression and cruelty?

CURIOSITY.

CURIOSITY in children is but an appetite a knowledge, and therefore ought to be encourag in them, not only as a good sign, but as the gr instrument nature has provided, to remove that norance they were born with, and which with this busy inquisitiveness will make them dull s useless creatures. The ways to encourage it,

keep it active and busy, are, I suppose, these following:

1. Not to check or discountenance any inquiries he shall make, nor suffer them to be laughed at; but to answer all his questions, and explain the matters he desires to know, so as to make them as much intelligible to him, as suits the capacity of his age and knowledge. But confound not his understanding with explications or notions that are above it, or with the variety or number of things that are not to his present purpose. Mark what it is his mind aims at in the question, and not what words he expresses it in: and, when you have informed him in that, you shall see how his thoughts will enlarge themselves, and how by fit answers he may be led on farther than perhaps you could imagine. For knowledge is grateful to the understanding, as light to the eyes: children are pleased and delighted with it exceedingly, especially if they see that their inquiries are regarded, and that their desire of knowing is encouraged and commended. And I doubt not but one great reason, why many children abandon themselves to silly sports, and trifle away all their time insipidly, is, because they have found their curiosity baulked and their inquiries neglected. But had they been treated with more kindness and respect, and their questions answered, as they should, to their satisfaction, I doubt not but they would have taken more pleasure in learning, and improving their knowledge, wherein there would be still newness and variety, which is what they are delighted with, than in returning over and over to the same play and *play-things*.

2. To this serious answering their questions, and informing their understandings in what they desire, as if it were a matter that needed it, should be added some peculiar ways of commendation. Let others, whom they esteem, be told before their faces of the knowledge they have in such and such things; and we are all, even from our cradles, vain and proud creatures, let their vanity be flattered with things that will do them good; and let their pride set them on work on something which may turn to their advantage. Upon this ground you shall find, that there cannot be a greater spur to the attaining what you would have the elder learn and know himself, than to set him upon teaching it his younger brothers and sisters.

3. As children's inquiries are not to be slighted, so also great care is to be taken, that they never receive deceitful and illuding answers. They easily perceive when they are slighted or deceived, and quickly learn the trick of neglect, dissimulation, and falshood, which they observe others to make use of. We are not to intrench upon truth in any conversation, but least of all with children; since, if we play false with them, we not only deceive their expectation, and hinder their knowledge, but corrupt their innocence, and teach them the worst of vices. They are travellers newly arrived in a strange country, of which they know nothing: we should therefore make conscience not to mislead them. And though their questions seem sometimes very material, yet they should be seriously answered; for however they may appear *to us* (*to* whom they are long since known) inquiries *not worth* the making, they are of moment to

those who are wholly ignorant. Children are strangers to all we are acquainted with; and all the things they meet with, are at first unknown to them, as they once were to us; and happy they are who meet with civil people that will comply with their ignorance, and help them to get out of it.

If you or I now should be set down in Japan, with all our prudence and knowledge about us, a conceit whereof makes us perhaps so apt to slight the thoughts and inquiries of children; should we, I say, be set down in Japan, we should no doubt, (if we would inform ourselves of what is there to be known,) ask a thousand questions, which to a supercilious or inconsiderate Japanese would seem very idle and impertinent; though to us they would be very material, and of importance to be resolved; and we should be glad to find a man so complaisant and courteous, as to satisfy our demands, and instruct our ignorance.

When any new thing comes in their way, children usually ask the common question of a stranger, What is it? whereby they ordinarily mean nothing but the name; and therefore to tell them how it is called, is usually the proper answer to that demand. The next question usually is, What is it for? And to this it should be answered truly and directly: the use of the thing should be told, and the way explained, how it serves to such a purpose, as far as their capacities can comprehend it; and so of any other circumstances they shall ask about it; not turning from them, till you have given them all the satisfaction they are capable of, and *so leading them* by your answers into farther

questions. And perhaps to a grown man such conversation will not be altogether so idle and insignificant, as we are apt to imagine, The native and untaught suggestions of inquisitive children do often offer things that may set a considering man's thoughts on work. And I think there is frequently more to be learned from the unexpected questions of a child than the discourses of men, who talk in a road, according to the notions they have borrowed, and the prejudices of their education.

4. Perhaps it may not sometimes be amiss to excite their curiosity, by bringing strange and new things in their way, on purpose to engage their enquiry, and give them occasion to inform themselves about them; and if by chance their curiosity leads them to ask what they should not know, it is a great deal better to tell them plainly, that it is a thing that belongs not to them to know, than to pop them off with a falshood, or a frivolous answer.

DREAMS.

We have sometimes instances of perception, whilst we are asleep; and retain the memory of those thoughts: but how extravagant and incoherent for the most part they are; how little conformable to the perfection and order of a rational being, those who are acquainted with dreams need not be told. This I would willingly be satisfied in, *whether* the soul, when it thinks thus apart, and, *as it* were, separate from the body, acts less *rationally* than when conjointly with it, or no. If

its separate thoughts be less rational, then these men must say, that the soul owes the perfection of rational thinking to the body: if it does not, it is wonder that our dreams should be, for the most part, so frivolous and irrational; and that the soul should retain none of its more rational soliloquies and meditations.

Those who so confidently tell us, that "the soul always actually thinks," I would they would also tell us what those ideas are that are in the soul of a child, before, or just at the union with the body, before it hath received any by sensation. The dreams of sleeping men are, as I take it, all made up of the waking man's ideas, though for the most part oddly put together. It is strange if the soul has ideas of its own, that it derived not from sensation or reflection (as it must have, if it thought before it received any impressions from the body) that it should never in its private thinking (so private, that the man himself perceives it not) retain any of them, the very moment it wakes out of them, and then make the man glad with new discoveries. Who can find it reasonable, that the soul should, in its retirement, during sleep, have so many hours thoughts, and yet never light on any of those ideas it borrowed not from sensation or reflection; or at least preserve the memory of none but such, which, being occasioned from the body, must needs be less natural to a spirit? It is strange that the soul never once in a man's whole life recall over any of its pure native thoughts, and those ideas it had before it borrowed any thing from the body; never bring into the waking man's view any other ideas but what have a tang of the

cask, and manifestly derive their original from that union. If it always thinks, and so had ideas before it was united, or before it received any from the body, it is not to be supposed, but that during sleep it recollects its native ideas; and during that retirement from communicating with the body, whilst it thinks by itself, the ideas it is busied about should be, sometimes, at least, those more natural and congenial ones which it had in itself, underived from the body or its own operations about them: which, since the waking man never remembers, we must from this hypothesis conclude either that the soul remembers something that the man does not; or else that memory belongs only to such ideas as are derived from the body, or the mind's operations about them.

EDUCATION.

THE great mistake I have observed in people's breeding their children has been, that this has not been taken care enough of in its due season; that the mind has not been made obedient to discipline, and pliant to reason, when at first it was most tender, most easy to be bowed. Parents being wisely ordained by nature to love their children, are very apt, if reason watch not that natural affection very warily; are apt, I say, to let it run into fondness. They love their little ones, and *it is their duty*: but they often with them cherish *their faults* too. They must not be crossed, for-

sooth; they must be permitted to have their wills in all things: and they being in their infancies not capable of great vices, their parents think they may safely enough indulge their little irregularities, and make themselves sport with that pretty perverseness which they think well enough becomes that innocent age. But to a fond parent, that would not have his child corrected for a perverse trick, but excused it, saying it was a small matter; Solon very well replied, "Aye, but custom is a great one."

The fondling must be taught to strike, and call names; must have what he cries for, and do what he pleases. Thus parents, by humouring and cockering them when little, corrupt the principles of nature in their children, and wonder afterwards to taste the bitter waters, when they themselves have poisoned the fountain. For when their children are grown up and these ill habits with them; when they are now too big to be dandled, and their parents can no longer make use of them as playthings; then they complain that the brats are untoward and perverse; then they are offended to see them wilful, and are troubled with those ill humours, which they themselves infused and fomented in them; and then, perhaps too late, would be glad to get out those weeds which their own hands have planted, and which now have taken too deep root to be easily extirpated. For he that has been used to have his will in every thing, as long as he was in coats, why should we think it strange that he should desire it, and contend for it still, when he is in breeches? Indeed, as he grows more towards a man, age shews his

faults the more, so that there be few parents then so blind, as not to see them! few so insensible as not to feel the ill effects of their own indulgence. He had the will of his maid before he could speak or go; he had the mastery of his parents ever since he could prattle; and why, now he is grown up, is stronger and wiser than he was then, why now of a sudden must he be restrained and curbed? why must he at seven, fourteen, or twenty years old, lose the privilege which the parent's indulgence, till then, so largely allowed him? Try it in a dog, or an horse, or any other creature, and see whether the ill and resty tricks they have learned when young, are easily to be mended when they are knit: and yet none of those creatures are half so wilful and proud, or half so desirous to be masters of themselves and others, as man.

We are generally wise enough to begin with them, when they are very young; and discipline betimes those other creatures we would make useful and good for somewhat. They are only our own offspring, that we neglect in this point; and having made them ill children, we foolishly expect they should be good men. For if the child must have grapes, or sugar-plums, when he has a mind to them, rather than make the poor baby cry, or be out of humour; why, when he is grown up, must he not be satisfied too, if his desires carry him to wine or women? They are objects as suitable to twenty-one or more years, as what he cried for, when little, was to the inclinations of *a child.* The having desires accommodated to *the apprehensions* and relish of those several ages, *is not the fault*; but the not having them subject

to the rules and restraints of reason: the difference lies not in the having or not having appetites, but in the power to govern, and deny ourselves in them. He that is not used to submit his will to the reason of others, when he is young, will scarce hearken or submit to his own reason, when he is of age to make use of it. And what kind of a man such an one is like to prove, is easy to foresee.

These are oversights usually committed by those who seem to take the greatest care of their children's education. But if we look into the common management of children, we shall have reason to wonder, in the great dissoluteness of manners, which the world complains of, that there are any footsteps at all left to virtue. I desire to know what vice can be named, which parents, and those about children, do not season them with, and drop into them the seeds of, as often as they are capable to receive them? I do not mean by the examples they give, and the patterns they set before them, which is encouragement enough; but that which I would take notice of here, is the down right teaching them vice, and actually putting them out of the way of virtue. Before they can go, they principle them with violence, revenge, and cruelty. "Give me a blow that I may beat him," is a lesson which most children every day hear: and it is thought nothing, because their hands have not strength enough to do any mischief. But I ask, does not this corrupt their minds? is not this the way of force and violence that they are set in? and if they have been taught, *when little, to* strike and hurt others by proxy, and

encouraged to rejoice in the harm they have brought upon them, and see them suffer; are they not prepared to do it, when they are strong enough to be felt themselves, and can strike to some purpose?

The coverings of our bodies, which are for modesty, warmth, and defence, are, by the folly or vice of parents, recommended to their children for other uses. They are made matter of vanity and emulation. A child is set a longing after a new suit, for the finery of it: and when the little girl is tricked up in her new gown and commode, how can her mother do less than teach her to admire herself, by calling her "her little queen," and "her princess?" Thus the little ones are taught to be proud of their cloaths, before they can put them on. And why should they not continue to value themselves for this outside fashionableness of the taylor or tire-woman's making, when their parents have so early instructed them to do so?

Lying and equivocations, and excuses little different from lying, are put into the mouths of young people, and commended in apprentices and children, whilst they are for their master's or parent's advantage. And can it be thought that he, that finds the straining of truth dispensed with, and encouraged, whilst it is for his master's turn, will not make use of that privilege for himself, when it may be for his own profit?

Those of the meaner sort are hindered by the streightness of their fortunes, from encouraging intemperance in their children, by the temptation of *their diet*, or invitations to eat and drink more *than enough*: but their own ill examples, when-

ever plenty comes in their way, shew that it is not the dislike of drunkeness or gluttony that keeps them from excess, but want of materials. But if we look into the houses of those who are a little warmer in their fortunes, there eating and drinking are made so much the great business and happiness of life, that children are thought neglected, if they have not their share of it. Sauces and ragouts, and foods disguised by all the arts of cookery, must tempt their palates, when their bellies are full: and then, for fear the stomach should be overcharged, a pretence is found for the other glass of wine, to help digestion, though it only serves to increase the surfeit.

Is my young master a little out of order? the first question is, "What will my dear eat? what shall I get for thee?" Eating and drinking are instantly pressed; and every body's invention is set on work to find out something luscious and delicate enough to prevail over that want of appetite which nature has wisely ordered in the beginning of distempers, as a defence against their increase; that, being freed from the ordinary labour of digesting any new load in the stomach, she may be at leisure to correct and master the peccant humours.

And where children are so happy in the care of their parents, as by their prudence to be kept from the excess of their tables, to the sobriety of a plain and simple diet; yet there too they are scarce to be preserved from the contagion that poisons the mind. Though by a discrete management, whilst they are under tuition, their healths, perhaps, may be pretty well secured; yet their

desires must needs yield to the lessons which everywhere will be read to them upon this part of epicurism. The commendation that eating well has every-where, cannot fail to be a successful incentive to natural appetite, and bring them quickly to the liking and expence of a fashionable table. This shall have from every one, even the reprovers of vice, the title of living well. And what shall sullen reason dare to say against the public testimony? or can it hope to be heard, if it should call that luxury, which is so much owned, and universally practised by those of the best quality.

This is now so grown a vice, and has so great supports, that I know not whether it do not put in for the name of virtue; and whether it will not be thought folly, or want of knowledge of the world, to open one's month against it. And truly I should suspect, that what I have here said of it might be censured, as a little satire out of my way, did I not mention it with a view, that it might awaken the care and watchfulness of parents in the education of their children; when they see how they are beset on every side, not only with temptations, but instructors to vice, and that perhaps in those they thought places of security. I shall not dwell any longer on this subject; much less run over all the particulars, that would shew what pains are used to corrupt children, and instil principles of vice into them: but I desire parents soberly to consider, what irregularity or vice there is, which children are not visibly taught; and whether it be not their duty and wisdom to provide *them other* instructions.

It seems plain to me, that the principle of all

virtue and excellency lies in a power of denying ourselves the satisfaction of our own desires, where reason does not authorise them. This power is to be got and improved by custom, made easy and familiar by an early practice. If therefore I might be heard, I would advise, that, contrary to the ordinary way, children should be used to submit their desires, and go without their longings, even from their very cradles. The very first thing they should learn to know, should be, that they were not to have any thing, because it pleased them, but because it was thought fit for them. If things suitable to their wants were supplied to them, so that they were never suffered to have what they once cried for, they would learn to be content without it; would never with bawling and peevishness contend for mastery; nor be half so uneasy to themselves and others as they are, because from the first beginning they are not thus handled. If they were never suffered to obtain their desire by the impatience they expressed for it, they would no more cry for other things, than they do for the moon.

I say not this, as if children were not to be indulged in any thing, or that I expected they should, in hanging-sleeves, have the reason and conduct of counsellors. I consider them as children, who must be tenderly used, who must play and have play-things. That which I mean is, that whenever they craved what was not fit for them to have or do, they should not be permitted it, because they were little and desired it; nay, whatever they were importunate for, they should be sure, for that *very reason*, to be denied. I have seen

children at a table, who, whatever was there, never asked for any thing, but contentedly took what was given them: and at another place, I have seen others cry for every thing they saw, must be served out of every dish, and that first too. What made this vast difference but this, that one was accustomed to have what they called or cried for, the other to go without it? The younger they are, the less, I think, are their unruly and disorderly appetites to be complied with; and the less reason they have of their own, the more are they to be under the absolute power and restraint of those in whose hands they are. From which I confess, it will follow, that none but discreet people should be about them. If the world commonly does otherwise, I cannot help that. I am saying what I think should be; which, if it were already in fashion, I should not need to trouble the world with a discourse on this subject. But yet I doubt not but, when it is considered, there will be others of opinion with me, that the sooner this way is begun with children, the easier it will be for them and their governors too: and that this observed as an inviolable maxim, that whatever once is denied them, they are certainly not to obtain by crying or importunity; unless one has a mind to teach them to be impatient and troublesome, by rewarding them for it, when they are so.

Those therefore that intend ever to govern their children, should begin it whilst they are very little; and look that they perfectly comply with *the will* of their parents. Would you have your son obedient to you when past a child? Be sure

i to establish the authority of a father, as soon
e is capable of submission, and can understand
vhose power he is. If you would have him
d in awe of you, imprint it in his infancy; and,
e approaches more to a man, admit him nearer
our familiarity; so shall you have him your
lient subject (as is fit) whilst he is a child, and
affectionate friend when he is a man. For
binks they mightily misplace the treatment due
heir children, who are indulgent and familiar
n they are little, but severe to them, and keep
n at a distance when they are grown up. For
ty and indulgence can do no good to children:
r want of judgment makes them stand in need
straint and discipline. And, on the contrary,
eriousness and severity is but an ill way of
ling men, who have reason of their own to
e them, unless you have a mind to make your
lren, when grown up, weary of you; and se-
y to say within themselves, "When will you
e, father?"

imagine every one will judge it reasonable,
their children, when little, should look upon
parents as their lords, their absolute govern-
and, as such, stand in awe of them: and that,
n they come to riper years, they should look
hem as their best, as their only sure friends:
as such, love and reverence them. The way
ve mentioned, if I mistake not, is the only
to obtain this. We must look upon our chil-
, when grown up, to be like ourselves; with
ame passions, the same desires. We would
ought rational creatures, and have our free-
; we love not to be uneasy under constant

rebukes and brow-beatings; nor can we bear severe humours, and great distance in those we converse with. Whoever has such treatment, when he is a man, will look out other company, other friends, other conversation, with whom he can be at ease. If therefore a strict hand be kept over children from the beginning, they will in that age be tractable, and quietly submit to it, as never having known any other: and if, as they grow up to the use of reason, the rigour of government be, as they deserve it, gently relaxed, the father's brow more smoothed to them, and the distance by degrees abated: his former restraints will increase their love, when they find it was only a kindness for them, and a care to make them capable to deserve the favour of their parents and the esteem of every body else.

Thus much for the settling your authority over children in general. Fear and awe ought to give you the first power over their minds, and love and friendship in riper years to hold it; for the time must come when they will be past the rod and correction; and then, if the love of you make them not obedient and dutiful; if the love of virtue and reputation keep them not in laudable courses; I ask, what hold will you have upon them to turn them to it? Indeed, fear of having a scanty portion, if they displease you, may make them slaves to your estate; but they will be never the less ill and wicked in private, and that restraint will not last always. Every man must some time or other be trusted to himself, and his own conduct; and he that is a good, a virtuous, and able man, must be made so within. And therefore

what he is to receive from education, what is to sway and influence his life, must be something put into him betimes: habits woven into the very principles of his nature; and not a counterfeit carriage and dissembled outside, put on by fear, only to avoid the present anger of a father, who perhaps may disinherit him.

This being laid down in general, as the course ought to be taken, it is fit we come now to consider the parts of the discipline to be used a little more particularly. I have spoken so much of carrying a strict hand over children, that perhaps I shall be suspected of not not considering enough what is due to their tender age and constitutions. But that opinion will vanish, when you have heard me a little farther. For I am very apt to think that great severity of punishment does but very little good, nay, great harm in education: and I believe it will be found, that, cæteris paribus, those children who have been most chastised, seldom make the best men. All that I have hitherto contended for, is, that whatsoever rigour is necessary, it is more to be used, the younger children are; and, having by a due application wrought its effect, it is to be relaxed, and changed into a milder sort of government.

A compliance and suppleness of their wills, being by a steady hand introduced by parents, before children have memories to retain the beginnings of it, will seem natural to them, and work afterwards in them as if it were so; preventing all occasions of struggling or repining. The only care that is necessary is, that it be begun early, and *inflexibly kept to, till* awe and respect be grown fa-

miliar, and there appears not the least reluctancy in the submission, and ready obedience of their minds. When this reverence is once thus established, (which it must be early, or else it will cost pains and blows to recover it, and the more, the longer it is deferred,) it is by it, mixed still with as much indulgence, as they made not an ill use of, and not by beating, chiding, or other servile punishments, they are for the future to be governed as they grow up to more understanding.

This is so, will be easily allowed, when it is but considered what is to be aimed at, in an ingenuous education; and upon what it turns.

1. He that has not a mastery over his inclinations, he that knows not how to resist the importunity of present pleasure or pain, for the sake of what reason tells him is fit to be done, wants the true principle of virtue and industry, and is in danger of never being good for any thing. This temper, therefore, so contrary to unguided nature, is to be got betimes; and this habit, as the true foundation of future ability and happiness, is to be wrought into the mind as early as may be, even from the first dawnings of any knowledge or apprehension in children; and so to be confirmed in them, by all the care and ways imaginable, by those who have the oversight of their education.

2. On the other side, if the mind be curbed, and humbled too much in children; if their spirits be abased and broken much, by too strict an hand over them; they lose all their vigour and industry, and are in a worse state than the former. For extravagant young fellows, that have liveliness and spirit, come sometimes to be set right, and to make

able and great men: but dejected minds, timorous and tame, and low spirits, are hardly ever to be raised, and very seldom attain to any thing. To avoid the danger that is on either hand is the great art; and he that has found a way how to keep up a child's spirit, easy, active, and free; and yet at the same time, to restrain him from many things he has a mind to, and to draw him to things that are uneasy to him; he, I say, that knows how to reconcile these seeming contradictions, has, in my opinion, got the true secret of education.

The usual lazy and short way by chastisement, and the rod, which is the only instrument of government that tutors generally know, or ever think of, is the most unfit of any to be used in education; because it tends to both those mischiefs; which, as we have shewn, are the Scylla and the Charybdis, which, on the one hand or the other, ruin all that miscarry.

1. This kind of punishment contributes not at all to the mastery of our natural propensity to indulge corporal and present pleasure, and to avoid pain at any rate; but rather encourages it: and thereby strengthens that in us, which is the root, from whence springs all vicious actions, and the irregularities of life. From what other motive but of sensual pleasure and pain, does a child act, who drudges at his book against his inclination, or abstains from eating unwholesome fruit, that he takes pleasure in, only out of fear of whipping. He in this only prefers the greater corporal pleasure, or avoids the greater corporal pain. And what is it govern his actions, and direct his conduct, by such motives as these? what is it, I say, but to cherish

that principle in him, which it is our business to root out and destroy? And therefore I cannot think any correction useful to a child, where the shame of suffering for having done amiss does not work more upon him than the pain.

2. This sort of correction naturally breeds an aversion to that which is the tutor's business to create a liking to. How obvious is it to observe, that children come to hate things which were at first acceptable to them, when they find themselves whipped and chid, and teazed about them; and it is not to be wondered at in them; when grown men would not be able to be reconciled to any thing by such ways. Who is there that would not be disgusted with any innocent recreation, in itself indifferent to him, if he should with blows or ill language, be hauled to it, when he had no mind? or be constantly so treated, for some circumstances in his application to it? This is natural to be so. Offensive circumstances ordinarily infect innocent things, which they are joined with: and the very sight of a cup, wherein any one uses to take nauseous physic, turns his stomach; so that nothing will relish well out of it, though the cup be ever so clean, and well-shaped, and of the richest materials.

3. Such a sort of slavish discipline makes a slavish temper. The child submits, and dissembles obedience, whilst the fear of the rod hangs over him; but when that is removed, and, by being out of sight, he can promise himself impunity, he gives the greater scope to his natural inclination; which by this way is not at all altered, but, on the contrary, heightened and increased in

him; and after such restraint, breaks out usually with the more violence. Or,

4. If severity, carried to the highest pitch does prevail, and works a cure upon the present unruly distemper, it is often bringing in the room of it worse and more dangerous disease, by breaking the mind; and then, in the place of a disorderly young fellow, you have a low-spirited moped creature; who, however with his unnatural sobriety, he may please silly people, who commend tame inactive children, because they make no noise, nor give them any trouble; yet, at last, will probably prove as uncomfortable a thing to his friends, as he will be, all his life, an useless thing to himself and others.

Beating then, and all other sorts of slavish and corporal punishments, are not the discipline fit to be used in the education of those who would have wise, good, and ingenuous men; and therefore very rarely to be applied, and that only on great occasions and cases of extremity. On the other side, to flatter children by rewards of things that are pleasant to them, is as carefully to be avoided. He that will give to his son apples or sugar-plums, or what else of this kind he is most delighted with, to make him learn his book, does but authorise his love of pleasure, and cocker up that dangerous propensity, which he ought by all means to subdue and stifle in him. You can never hope to teach him to master it, whilst you compound for the check you give his inclination in one place, by the satisfaction you propose to it in another. To make a good, a wise, and a virtuous man, *it is fit he should* learn to cross his appetite.

and deny his inclination to riches, finery, or pleasing his palate, &c. whenever his reason advises the contrary, and his duty requires it. But when you draw him to do any thing that is fit, by the offer of money; or reward the pains of learning his book, by the pleasure of a luscious morsel; when you promise him a lace-cravat, or a fine new suit, upon performance of some of his little tasks; what do you, by proposing these as rewards, but allow them to be the good things he should aim at, and thereby encourage his longing for them, and accustom him to place his happiness in them? Thus people to prevail with children to be industrious about their grammar, dancing, or some other such matter, of no great moment to the happiness or usefulness of their lives, by misapplied rewards and punishments, sacrifice their virtue, invert the order of their education, and teach them luxury, pride, or covetousness, &c. For in this way flattering those wrong inclinations, which they should restrain and suppress, they lay the foundation of those future vices, which cannot be avoided, but by curbing our desires, and accustoming them early to submit to reason.

I say not this, that I would have children kept from the conveniencies or pleasures of life, that are not injurious to their health or virtue: on the contrary, I would have their lives made as pleasant, and as agreeable to them as may be, in a plentiful enjoyment of whatsoever might innocently delight them: provided it be with this caution, that they have those enjoyments, only as the consequences of the state of esteem and acceptation they are in with their parents and governors; but

they should never be offered or bestowed on them, as the reward of this or that particular performance, that they show an aversion to, or to which they would not have applied themselves without that temptation.

But if you take away the rod on one hand, and these little encouragements, which they are taken with, on the other; how then (will you say) shall children be governed? Remove hope and fear, and there is an end of all discipline. I grant, that good and evil, reward and punishment, are the only motives of a rational creature: these are the spur and reins, whereby all mankind are set on work and guided, and therefore they are to be made use of to children too. For I advise their parents and governors always to carry this in their minds, that children are to be treated as rational creatures.

Rewards, I grant, and punishments must be proposed to children, if we intend to work upon them. The mistake, I imagine, is, that those that are generally made use of, are ill chosen. The pains and pleasures of the body are, I think, of ill consequence, when made the rewards and punishments whereby men would prevail on their children: for, as I said before, they serve but to increase and strengthen those inclinations, which it is our business to subdue and master. What principle of virtue do you lay in a child, if you will redeem his desires of one pleasure by the proposal of another? This is but to enlarge his appetite, and instruct it to wander. If a child cries for an unwholesome and dangerous fruit, you purchase his *quiet by giving* him a less hurtful sweet-meat.

This perhaps may preserve his health, but spoils his mind, and sets that farther out of order. For here you only change the object; but flatter still his appetite, and allow that must be satisfied wherein, as I have shewed, lies the root of the mischief: and till you bring him to be able to bear a denial of that satisfaction, the child may at present be quiet and orderly, but the disease is not cured. By this way of proceeding you foment and cherish in him that which is the spring from whence all the evil flows; which will be sure on the next occasion to break out again with more violence, give him stronger longings, and you more trouble.

The rewards and punishments then whereby we should keep children in order, are quite of another kind; and of that force, that when we can get them once to work, the business, I think, is done, and the difficulty is over. Esteem and disgrace are, of all others, the most powerful incentives to the mind, when once it is brought to relish them. If you can once get into children a love of credit, and an apprehension of shame and disgrace, you have put into them the true principle, which will constantly work, and incline them to the right. But it will be asked, How shall this be done?

I confess, it does at first appearance, want some difficulty; but yet I think it worth our while to seek the ways (and practise them when found) to attain this, which I look on as the great secret of education.

First, children (earlier perhaps than we think) *are very* sensible of praise and commendation. *They find* a pleasure in being esteemed a

lued, especially by their parents, and those whom they depend on. If therefore the father caress and commend them, when they do well; shew a cold and neglectful countenance to them upon doing ill; and this accompanied by a like carriage of the mother, and all others that are about them; it will in a little time make them sensible of the difference: and this, if constantly observed, I doubt not, but will of itself work more than threats or blows, which lose their force when once grown common, and are of no use when shame does not attend them; and therefore are to be forborne, and never to be used, but in the case hereafter mentioned, when it is brought to extremity.

But, secondly to make the sense of esteem or disgrace sink the deeper, and be of the more weight, other agreeable or disagreeable things should constantly accompany these different states; not as particular rewards and punishments of this or that particular action, but as necessarily belonging to, and constantly attending one, who by his carriage has brought himself into a state of disgrace or commendation. By which way of treating them, children may, as much as possible, be brought to conceive, that those that are commended and in esteem for doing well, will necessarily be beloved and cherished by every body, and have all other good things as a consequence of it; and, on the other side, when any one by miscarriage falls into disesteem, and cares not to preserve his credit, he will unavoidably fall under neglect and contempt: and in that state, the want of whatever might satisfy or delight him, will follow. *In this* way the objects of their desires

are made assisting to virtue; when a settled experience from the beginning teaches children, that the things they delight in, belong to, and are to be enjoyed by those only, who are in a state of reputation. If by these means you can come once to shame them out of their faults, (for besides that I would willingly have no punishment,) and make them in love with the pleasure of being well thought on, you may turn them as you please, and they will be in love with all the way of virtue.

The great difficulty, here is, I imagine, from the folly and perverseness of servants, who are hardly to be hindered from crossing herein the design of the father and mother. Children, discountenanced by their parents for any fault, find usually a refuge and relief in the caresses of those foolish flatterers, who thereby undo whatever the parents endeavour to establish. When the father or mother looks sour on the child, every body else should put on the same coldness to him, and nobody give him countenance, till forgiveness asked, and a reformation of his fault has set him right again, and restored him to his former credit. If this were constantly observed, I guess there would be little need of blows or chiding: their own ease and satisfaction would quickly teach children to court commendation, and avoid doing that which they found every body condemned, and they were sure to suffer for, without being chid or beaten. This would teach them modesty and shame; and they would quickly come to have a natural abhorrence for that, which they found made them *slighted* and neglected by every body. But how this inconvenience from servants is to be remedied,

I must leave to parents care and consideration. Only think it of great importance; and that they are very happy who can get discreet people about their children.

Frequent beating or chiding is therefore carefully to be avoided; because this sort of correction never produces any good, farther than it serves to raise shame and abhorrence of the miscarriage that brought it on them. And if the greatest part of the trouble be not the sense that they have done amiss, and the apprehension that they have drawn on themselves the just displeasure of their best friends, the pain of whipping will work but an imperfect cure. It only patches it up for the present, and skins it over, but reaches not to the bottom of the sore. Ingenuous shame, and the apprehension of displeasure, are the only true restraints; these alone ought to hold the reins, and keep the child in order. But corporal punishments must necessarily lose that effect, and wear out the sense of shame, where they frequently return. Shame in children has the same place that modesty has in women; which cannot be kept, and often transgressed against. And as to the apprehension of displeasure in the parents, they will come to be very insignificant, if the marks of that displeasure quickly cease, and a few blows fully expiate. Parents should well consider what faults in their children are weighty enough to deserve the declaration of their anger: but when their displeasis once declared to a degree that carries any punishment with it, they ought not presently to lay by the severity of their brows, but to restore their children to their former grace with some difficulty.

and delay a full reconciliation, till their conformity and more than ordinary merit, make good their amendment. If this be not so ordered, punishment will by familiarity become a mere thing of course, and lose all its influence; offending, being chastised, and then forgiven, will be thought as natural and necessary as noon, night, and morning, following one another.

Concerning reputation, I shall only remark this one thing more of it: that though it be not the true principle and measure of virtue, (for that is the knowledge of a man's duty, and the satisfaction it is to obey his Maker, in following the dictates of that light God has given him, with the hopes of acceptation and reward,) yet it is that which comes nearest to it: and being the testimony and applause that other people reason, as it were, by a common consent, gives to virtuous and well-ordered actions, it is the proper guide and encouragement of children, till they grow able to judge for themselves, and to find what is right by their own reason.

This consideration may direct parents, how to manage themselves in reproving and commending their children. The rebukes and chiding, which their faults will sometimes make hardly to be avoided, should not only be in sober, grave, and unpassionate words, but also alone in private: but the commendations children deserve they should receive before others. This doubles the reward, by spreading their praise; but the backwardness parents shew in divulging their faults, *will* make them set a greater value on their credit *themselves*, and teach them to be more careful to

preserve the good opinion of others, whilst they think they have it: but when, being exposed to shame, by publishing their miscarriages, they give it up for lost, that check upon them is taken off; and they will be the less careful to preserve other's good thoughts, of them, the more they suspect that their reputation with them is already blemished.

But if a right course be taken with children, there will not be so much need of the application of the common rewards and punishments, as we imagined, and as the general practice has established. For all their innocent folly, playing, and childish actions, are to be left perfectly free and unrestrained, as far as they can consist with the respect due to those that are present; and that with the greatest allowance. If these faults of their age, rather than of the children themselves were, as they should be, left only to time and imitation, and riper years to cure, children would escape a great deal of misapplied and useless correction: which either fails to overpower the natural disposition of their childhood, and so by an ineffectual familiarity, makes correction in other necessary cases of less use; or else it be of force to restrain the natural gaiety of that age, it serves only to spoil the temper both of body and mind. If the noise and bustle of their play prove at any time inconvenient, or unsuitable to the place and company they are in, which can only be where their parents are, a look or a word from their father or mother, if they have established the authority they should, will be enough either to remove, or quiet *them for that* time. But this gamesome

humour, which is wisely adapted by nature to their age and temper, should rather be encouraged, to keep up their spirits, and improve their strength and health, than curbed or restrained: and the chief art is to make all that they have to do, sport and play too.

And here give me leave to take notice of one thing I think a fault in the ordinary method of education; and that is the charging of children's memories, upon all occasions, with rules and precepts which they often do not understand, and are constantly as soon forgot as given. If it be some action you would have done, or done otherwise; whenever they forget, or do it aukwardly, make them do it over and over again, till they are perfect: whereby you will get these two advantages: First, to see whether it be an action they can do, or is fit to be expected of them. For sometimes children are bid to do things, which, upon trial, they are found not able to do: and had need be taught and exercised in, before they are required to do them. But it is much easier for a tutor to command, than to teach. Secondly, another thing got by it will be this, that by repeating the same action, till it be grown habitual in them, the performance will not depend on memory, or reflection, the concomitant of prudence and age, and not of childhood; but will be natural in them. Thus, bowing to a gentleman when he salutes him, and looking in his face when he speaks to him, is by constant use as natural to a well-bred man, as breathing; it requires no thought, no *reflection*. Having this way cured in your child *any fault*, it is cured for ever: and thus, one by

one, you may weed them out all, and plant what habits you please.

I have seen parents so heap rules on their children, that it was impossible for the poor little ones to remember a tenth part of them, much less to observe them. However, they were either by words or blows corrected for the breach of those multiplied and often very impertinent precepts. Whence it naturally followed, that the children minded not what was said to them; when it was evident to them, that no attention they were capable of, was sufficient to preserve them from transgression, and the rebukes which followed it.

Let therefore your rules to your son be as few as is possible, and rather fewer than more than seem absolutely necessary. For if you burthen him with many rules, one of these two things must necessarily follow, that either he must be very often punished, which will be of ill consequence, by making punishment too frequent and familiar; or else you must let the transgressions of some of your rules go unpunished, whereby they will of course grow contemptible, and your authority become cheap to him. Make but few laws, but see they be well observed, when once made. Few years require but few laws; and as his age increases, when one rule is by practice well established, you may add another.

But pray remember, children are not to be taught by rules, which will be always slipping out of their memories. What you think necessary for them to do, settle in them by an indispensible practice, as often as the occasion returns; and, if

it be possible, make occasions. This will beget habits in them, which, being once established, operate of themselves, easily and naturally, without the assistance of the memory. But here let me give two cautions: 1. The one is, that you keep them to the practice of what you would have grow into a habit in them, by kind words and gentle admonitions, rather as minding them of what they forget, than by harsh rebukes and chiding, as if they were actually guilty. 2dly, Another thing you are to take care of, is, not to endeavour to settle too many habits at once, lest by a variety you confound them, and so perfect none. When constant custom has made any one thing easy and natural to them, and they practise it without reflection, you may then go on to another.

This method of teaching children by a repeated practice, and the same action done over and over again, under the eye and direction of the tutor, till they have got the habit of doing it well, and not by relying on rules trusted to their memories; has so many advantages, which way soever we consider it, that I cannot but wonder (if ill customs could be wondered at in any thing) how it could possibly be so much neglected. I shall name one more that comes now in my way. By this method we shall see, whether what is required of him be adapted to his capacity, and any way suited to the child's natural genius and constitution. We must not hope wholly to change their original tempers, nor make the gay pensive and grave, nor the melancholy sportive, without spoiling them. God has stamped certain characters upon men's minds,

which, like their shapes, may perhaps be a little mended; but can hardly be totally altered and transformed into the contrary.

He therefore that is about children, should well study their natures and aptitudes, and see, by often trials, what turn they easily take, and what becomes them; observe what their native stock is, how it may be improved, and what it is fit for: he should consider what they want, whether they be capable of having it wrought into them by industry, and incorporated there by practice; and whether it be worth while to endeavour it. For in many cases, all that we can do, or should aim at, is, to make the best of what nature has given. to prevent the vices and faults to which such a constitution is most inclined, and give it all the advantages it is capable of. Every one's natural genius should be carried as far as it could; but to attempt the putting another upon him, will be but labour in vain; and what is so plaistered on, will at best sit but untowardly, and have always hanging to it the ungracefulness of contraint and affectation.

EXTACY.

When the mind turns its view inward upon itself, and contemplates its own actions, thinking is the first that occurs. In it the mind observes a great variety of modifications, and from thence receives distinct ideas. Thus the perception which actually accompanies, and is annexed to any

impression on the body, made by an external object, being distinct from all other modifications of thinking, furnishes the mind with a distinct idea, which we call sensation; which is, as it were, the actual entrance of any idea into the understanding by the senses. The same idea, when it again recurs without the operation of the like object on the external sensory, is remembrance; if it be sought after by the mind, and with pain and endeavour found, and brought again in view, it is recollection; if it be held there long under attentive consideration, it is contemplation. When ideas float in our mind, without any reflection or regard of the understanding, it is that which the French call reverie, our language has scarce a name for it. When the ideas that offer themselves (for, as I have observed in another place, whilst we are awake, there will always be a train of ideas succeeding one another in our minds) are taken notice of, and, as it were, registered in the memory, it is attention. When the mind with great earnestness, and of choice, fixes its view on any idea, considers it on all sides, and will not be called off by the ordinary solicitation of other ideas, it is that we call intention, or study. Sleep, without dreaming, is rest from all these: and dreaming itself, is the having of ideas (whilst the outward senses are stopped, so that they receive not outward objects with their usual quickness) in the mind, not suggested by any external objects, or known occasion, nor under any choice or conduct of the understanding at all. And whether that, which we call extasy, be not dreaming with the *eyes open*, I leave to be examined.

ETERNITY.

(Whence the idea of)

By the same means therefore, and from the same original that we come to have the idea of time, we have also that idea which we call eternity, viz. having got the idea of succession and duration, by reflecting on the train of our own ideas, caused in us either by the natural appearances of those ideas coming constantly of themselves into our waking thoughts, or else caused by external objects successively affecting our senses; and having from the revolutions of the sun got the ideas of certain lengths of duration, we can, in our thoughts, add such lengths of duration to one another, as often as we please, and apply them, so added, to durations past or to come: and this we can continue to do on, without bounds or limits, and proceed in infinitum, and apply thus the length of the annual motion of the sun to duration, supposed before the sun's, or any other motion had its being; which is no more difficult or absurd, than to apply the notion I have of the moving of a shadow one hour to-day upon the sun-dial to the duration of something last night, v. g. the burning of a candle, which is now absolutely separate from all actual motion: and it is as impossible for the duration of that flame for an hour last night to co-exist with any motion that now is, or for ever shall be, as for any part of duration, that was before the beginning of the world, to co-exist with the motion of the sun now. But yet this hinders not, but that

having the idea of the length of the motion of the shadow on a dial between the marks of two hours, I can as distinctly measure in my thoughts the duration of that candle-light last night, as I can the duration of any thing that does now exist: And it is no more than to think, that had the sun shone then on the dial, and moved after the same rate it doth now, the shadow on the dial would have passed from one hour-line to another, whilst that flame of the candle lasted.

The notion of an hour, day, or year, being only the idea I have of the length of certain periodical regular motions, neither of which motions do ever all at once exist, but only in the ideas I have of them in my memory derived from my senses or reflection; I can with the same ease, and for the same reason, apply it in my thoughts to duration antecedent to all manner of motion, as well as to any thing that is but a minute, or a day, antecedent to the motion, that at this very moment the sun is in. All things past are equally and perfectly at rest; and to this way of consideration of them are all one, whether they were before the beginning of the world, or but yesterday: the measuring of any duration by some motion depending not at all on the real co-existence of that thing to that motion, or any other periods of revolution, but the having a clear idea of the length of some periodical known motion, or other intervals of duration in my mind, and applying that to the duration of the thing I would measure.

Hence we see, that some men imagine the duration of the world, from its first existence to this present year 1689, to have been five thousand six

hundred and thirty-nine years, or equal to five thousand six hundred and thirty-nine annual revolutions of the sun, and others a great deal more; as the Egyptians of old, who in the time of Alexander counted twenty-three thousand years from the reign of the sun; and the Chinese now, who account the world three millions, two hundred and sixty-nine thousand years old or more: which longer duration of the world, according to their computation, though I should not believe to be true, yet I can equally imagine it with them, and as truly understand, and say one is longer than the other, as I understand, that Methusalem's life was longer than Enoch's. And if the common reckoning of five thousand six hundred and thirty-nine should be true (as it may be as well as any other assigned) it hinders not at all my imagining what others mean when they make the world one thousand years older, since every one may with the same facility imagine (I do not say believe) the world to be fifty thousand years old, as five thousand six hundred and thirty-nine; and may as well conceive the duration of fifty thonsand years, as five thousand six hundred thirty-nine. Whereby it appears, that to the measuring the duration of any thing by time, it is not requisite that that thing should be co-existent to the motion we measure by, or any other periodical revolution: but it suffices to this purpose, that we have the idea of the length of any regular periodical appearances, which we can in our minds apply to duration, with which the motion or appearance never coexisted.

For as in the history of the creation, delivered

by Moses, I can imagine that light existed three days before the sun was, or had any motion, barely by thinking, that the duration of light, before the sun was created, was so long as (if the sun had moved then, as it doth now) would have been equal to three of his diurnal revolutions; so by the same way I can have an idea of the chaos, or angels being created, before there was either light, or any continued motion, a minute, an hour, a day, a year, or one thousand years. For if I can but consider duration equal to one minute, before either the being or motion of any body, I can add one minute more till I come to sixty; and by the same way of adding minutes, hours, or years (i. e. such or such parts of the sun's revolutions, or any other period, whereof I have the idea) proceed in infinitum, and suppose a duration exceeding as many such periods as I can reckon, let me add whilst I will: which I think is the notion we have of eternity, of whose infinity we have no other notion, than we have of the infinity of number, to which we can add for ever without end.

EXTRAVAGANT IDEAS.

THERE is scarce any one that does not observe something that seems odd to him, and is in itself really extravagant in the opinions, reasonings, and actions of other men. The least flaw of this kind, if at all different from his own, every one is quick-sighted enough to espy in another, and will by the *authority* of reason forwardly condemn, though he be *guilty* of much greater unreasonableness in his own tenets and conduct, which he never per-

ceives, and will very hardly, if at all, be convinced of.

This proceeds not wholly from self-love, though that has often a great hand in it. Men of fair minds and not given up to the over-weening of self-flattery, are frequently guilty of it; and in many cases one with amazement hears the arguings, and is astonished at the obstinacy of a worthy man, who yields not to the evidence of reason, though laid before him as clear as day-light.

This sort of unreasonableness is usually imputed to education and prejudice, and for the most part truly enough, though that reaches not the bottom of the disease, nor shows distinctly enough whence it rises, or wherein it lies. Education is often rightly assigned for the cause, and prejudice is a good general name for the thing itself: but yet, I think, he ought to look a little farther, who would trace this sort of madness to the root it springs from, and so explain it, as to show whence this flaw has its original in very sober and rational minds, and wherein it consists.

I shall be pardoned for calling it by so harsh a name as madness, when it is considered, that opposition to reason deserves that name, and is really madness; and there is scarce a man so free from it, but that if he should always, on all occasions, argue or do as in some cases he constantly does would not be thought fitter for Bedlam than civil conversation. I do not here mean when he is under the power of an unruly passion, but in the steady calm course of his life. That which will yet more apologize for this harsh name, and ungrateful imputation on the greatest part of man-

kind, is, that inquiring a little by the bye into the nature of madness. I found it to spring from the very same root, and to depend on the very same cause we are here speaking of. This consideration of the thing itself, at a time when I thought not the least on the subject which I am now treating of, suggested it to me. And if this be a weakness to which all men are so liable; if this be a taint which so universally infects mankind; the greater care should be taken to lay it open under its due name, thereby to excite the greater care in its prevention and cure.

Some of our ideas have a natural correspondence and connexion one with another: it is the office and excellency of our reason to trace these, and hold them together in that union and correspondence which is founded in their peculiar beings. Besides this, there is another connection of ideas wholly owing to chance or custom: ideas, that in themselves are not all of kin, come to be so united in some men's minds, that it is very hard to separate them; they always keep in company, and the one no sooner at any time comes into the understanding, but its associate appears with it; and if they are more than two, which are thus united, the whole gang, always inseparable, show themselves together.

This strong combination of ideas, not allied by nature, the mind makes in itself either voluntarily or by chance; and hence it comes in different men to be very different, according to their different inclinations, education, interests, &c. Custom *settles* habits of thinking in the understanding, as *well as of* determining in the will, and of motions

in the body; all which seems to be but trains of motion in the animal spirits, which once set a-going, continue in the same steps they have been used to: which, by often treading, are worn into a smooth path, and the motion in it becomes easy, and as it were natural. As far as we can comprehend thinking, thus ideas seem to be produced in our minds; or if they are not, this may serve to explain their following one another in an habitual train, when once they are put into their track, as well as it does to explain such motions of the body. A musician used to any tune will find, that let it but once begin in his head, the ideas of the several notes of it will follow one another orderly in his understanding, without any care or attention, as regularly as his fingers move orderly over the keys of the organ to play out the tune he has begun, though his unattentive thoughts be elsewhere a wandering. Whether the natural cause of these ideas, as well as of that regular dancing of his fingers, be the motion of his animal spirits, I will not determine, how probable soever, by this instance, it appears to be so: but this may help us a little to conceive of intellectual habits, and of the tying together of ideas.

That there are such associations of them made by custom in the minds of most men, I think nobody will question, who has well considered himself or others; and to this, perhaps, might be justly attributed most of the sympathies and antipathies observable in men, which work as strongly, and produce as regular effects as if they were natural; and are therefore called so, though they at first had no other *original* but the accidental connection of

two ideas, which either the strength of the first impression future indulgence so united, that they always afterwards kept company together in that man's mind, as if they were but one idea. I say most of the antipathies, I do not say all, for some of them are truly natural, depend upon our original constitution, and are born with us; but a great part of those which are counted natural, would have been known to be from unheeded, though, perhaps, early impressions, or wanton fancies at first, which would have been acknowledged the original of them, if they had been warily observed. A grown person surfeiting with honey, no sooner hears the name of it, but his fancy immediately carries sickness and qualms to his stomach, and he cannot bear the very idea of it; other ideas of dislike, and sickness, and vomiting, presently accompany it, and he is disturbed, but he knows from whence to date this weakness, and can tell how he got this indisposition. Had this happened to him by an overdose of honey, when a child, all the same effects would have followed, but the cause would have been mistaken, and the antipathy counted natural.

I mention this not out of any great necessity there is, in this present argument, to distinguish nicely between natural and acquired antipathies; but I take notice of it for another purpose, viz. that those who have children, or the charge of their education, would think it worth their while diligently to watch, and carefully to prevent the undue connexion of ideas in the minds of young *people*. This is the time most susceptible of last*ing impressions*; and though those relating to the

health of the body are by discreet people minded and fenced against, yet I am apt to doubt, that those which relate more peculiarly to the mind, and terminate in the understanding or passions, have been much less heeded than the thing deserves; nay, those relating purely to the understanding have, as I suspect, been by most men wholly overlooked.

This wrong connexion in our minds of ideas in themselves loose and independent of one another, has such an influence, and is of so great force to set us away in our actions, as well moral as natural, passions, reasonings and notions themselves, that perhaps there is not any one thing that deserves more to be looked after.

The ideas of goblins and sprights have really no more to do with darkness than light; yet let but a foolish maid inculcate these often on the mind of a child, and raise them there together, possibly he shall never be able to separate them again so long as he lives: but darkness shall ever afterwards bring with it those frightful ideas, and they shall be so joined, that he can no more bear the one than the other.

A man receives a sensible injury from another, thinks on the man and that action over and over; and by ruminating on them strongly, or much in his mind, so cements those two ideas together, that he makes them almost one; never thinks on the man, but the pain and displeasure he suffered comes into his mind with it, so that he scarce distinguishes them, but has as much an aversion for the one as the other. Thus hatreds are often be-

gotten from slight and innocent occasions, and quarrels propagated and continued in the world.

A man has suffered pain or sickness in any place; he saw his friend die in such a room; though these have in nature nothing to do with one another, yet when the idea of the place occurs to his mind, it brings (the impression being once made) that of the pain and displeasure with it; he confounds them in his mind, and can as little bear the one as the other.

When this combination is settled, and while it lasts, it is not in the power of reason to help us, and relieve us from the effects of it. Ideas in our minds, when they are there, will operate according to their natures and circumstances; and here we see the cause why time cures certain affections, which reason, though in the right, and allowed to be so, has not power over, nor is able against them to prevail with those who are apt to hearken to it in other cases. The death of a child, that was the daily delight of his mother's eyes, and joy of her soul, rends from her heart the whole comfort of her life, and gives her all the torment imaginable: use the consolations of reason in this case, and you were as good preach ease to one on the rack, and hope to allay, by rational discourses, the pain of his joints tearing asunder. Till time has by disuse separated the sense of that enjoyment, and its loss, from the idea of the child returning to her memory, all representations, though ever so reasonable, are in vain; and therefore some in whom the union between *these ideas* is never dissolved, spend their lives in

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with that of the person, and he that has
us subjected, is not able to separate them?

Instances of this kind are so plentiful everywhere, that if I add one more, it is only for the pleasant oddness of it. It is of a young gentleman, who having learnt to dance, and that to great perfection, there happened to stand an old trunk in the room where he learnt. The idea of this remarkable piece of houshold-stuff had so often mixed itself with the turns and steps of all his dances, that though in that chamber he could dance excellently well, yet it was only whilst that trunk was there; nor could he perform well in any other place, unless that or some such other trunk had its due position in the room. If this story shall be suspected to be dressed up with some comical circumstances, a little beyond precise nature; I answer for myself, that I had it some years since from a very sober and worthy man, upon his own knowledge, as I report it: and I dare say, there are very few inquisitive persons, who read this, who have not met with accounts, if not examples of this nature, that may parallel, or at leaſt justify this.

Intellectual habits and defects this way contracted, are not less frequent and powerful, though less observed. Let the ideas of being and matter be strongly joined either by education or much thought, whilst these are still combined in the mind, what notions, what reasonings will there be about separate spirits? Let custom from the very childhood have joined figure and shape to the idea of God, and what absurdities will that mind be liable to about the Deity?

Let the idea of infallibility be inseparably joined

to any person, and these two constantly together possess the mind: and then one body, in two places at once, shall unexamined be swallowed for a certain truth, by an implicit faith, whenever that imagined infallible person dictates and demands assent without inquiry.

Some such wrong and unnatural combinations of ideas will be found to establish the irreconcilable opposition between different sects of philosophy and religion; for we cannot imagine every one of their followers to impose wilfully on himself, and knowingly refuse truth offered by plain reason. Interest, though it does a great deal in the case, yet cannot be thought to work whole societies of men to so universal a perverseness, as that every one of them to a man should knowingly maintain falshood: some at least must be allowed to do what all pretend to, i. e. to pursue truth sincerely; and therefore there must be something that blinds their understandings, and makes them not see the falshood of what they embrace for real truth. That which thus captivates their reasons, and leads men of sincerity blindfold from common sense, will, when examined, be found to be what we are speaking of: some independent ideas, of no alliance to one another, are by education, custom, and the constant din of their party, so coupled in their minds, that they always appear there together; and they can no more separate them in their thoughts, than if there were but one idea, and they operate as if they were so. This gives sense to jargon, demonstration to absurdities, and consistency to nonsense, and is the foundation of the greatest, I had almost said of all the

errors in the world; or if it does not reach so far, it is at least the most dangerous one, since so far as it obtains, it hinders men from seeing and examining. When two things in themselves disjoined, appear to the sight constantly uniting; if the eye sees these things rivetted, which are loose, where will you begin to rectify the mistakes that follow in two ideas, that they have been accustomed so to join in their minds, as to substitute one for the other, and, as I am apt to think, often without perceiving it themselves? This, whilst they are under the deceit of it, makes them incapable of conviction, and they applaud themselves as zealous champions for truth, when indeed they are contending for errour; and the confusion of two different ideas, which a customary connexion of them in their minds hath to them made in effect but one, fills their heads with false views, and their reasonings with false consequences.

ETERNITY MISUNDERSTOOD.

HAVING frequently in our mouths the name eternity, we are apt to think we have a positive comprehensive idea of it, which is as much as to say, that there is no part of that duration which is not clearly contained in our idea. It is true, that he that thinks so may have a clear idea of duration; he may also have a very clear idea of a very great length of duration: he may also have a clear idea of the comparison of that great one with still a *greater:* but it not being possible for him to *include in his* idea of any duration, let it be as great

s it will, the whole extent together of a duration here he supposes no end, that part of his idea, hich is still beyond the bounds of that large duation, he represents to his own thoughts, is very bscure and undetermined. And hence it is, that disputes and reasonings concerning eternity, or ny other infinite, we are apt to blunder, and involve ourselves in manifest absurdities.

In matter we have no clear ideas of the smallness f parts much beyond the smallest that occur to ny of our senses: and therefore when we talk of ne divisibility of matter in infinitum, though we ave clear ideas of division and divisibility, and ave also clear ideas of parts made out of a whole y division; yet we have but very obscure and onfused ideas of corpuscles, or minute bodies so o be divided, when by former divisions they are educed to a smallness much exceeding the perception of any of our senses; and so all that we ave clear and distinct ideas of, is of what division in general or abstractedly is, and the relation f totum and parts: but of the bulk of the body, o be thus infinitely divided after certain progresions, I think, we have no clear nor distinct idea t all. For I ask any one, whether taking the mallest atom of dust he ever saw, he has any listinct idea (bating still the number, which conerns not extension) betwixt the 100,000th, and he 1,000,000th part of it. Or if he thinks ne can refine his ideas to that degree, without osing sight of them, let him add ten cyphers to ach of those numbers. Such a degree of smallness is not unreasonable to be supposed, since a *division carried* on so far brings it no nearer the

end of infinite division, than the first division into two halves does. I must confess, for my part, I have no clear distinct ideas of the different bulk or extension of those bodies, having but a very obscure one of either of them. So that, I think, when we talk of division of bodies in infinitum, our idea of their distinct bulks, which is the subject and foundation of division, comes, after a little progression, to be confounded and almost lost in obscurity. For that idea, which is to represent only bigness, must be very obscure and confused, which we cannot distinguish from one ten times as big, but only by number; so that we have clear distinct ideas we may say, of ten and one, but no distinct ideas, of two such extensions. It is plain from hence, that when we talk of infinite divisibility of body, or extensions, our distinct and clear ideas are only of numbers; but the clear distinct ideas of extension, after some progress of division, are quite lost: and of such minute parts we have no distinct ideas at all; but it returns, as all our ideas of infinite do, at last to that of number always to be added; but thereby never amounts to any distinct idea of actual infinite parts. We have, it is true, a clear idea of division, as often as we think of it; but thereby we have no more a clear idea of infinite parts in matter, than we have a clear idea of an infinite number, by being able still to add new numbers to any assigned numbers we have: endless divisibility giving us no more a clear and distinct idea of *actually* infinite parts, than endless addibility (if I *may so* speak) gives us a clear and distinct idea of *an actually* infinite number; they both being only

in a power still of increasing the number, be it already as great as it will. So that of what remains to be added, (wherein consists the infinity) we have but an obscure, imperfect, and confused idea; from or about which we can argue or reason with no certainty or clearness, no more than we can in arithmetic, about a number of which we have no such distinct idea as we have of 4 or 100: but only this relative obscure one, that compared to any other, it is still bigger: and we have no more a clear positive idea of it when we say or conceive it is bigger or more than 400,000,000, than if we should say it is bigger than 40, or 4; 400,000,000 having no nearer a proportion to the end of addition, or number, than 4. For he that adds only 4 to 4, and so proceeds, shall as soon come to the end of all addition, as he that adds 400,000,000 to 400,000,000. And so likewise in eternity, he that has an idea of but four years, has as much a positive complete idea of eternity, as he that has one of 400,000,000 of years: for what remains of eternity beyond either of these two numbers of years is as clear to the one as the other; i. e, neither of them has any clear positive idea of it at all. For he that adds only four years to 4, and so on, shall as soon reach eternity, as he that adds 400,000,000 of years, and so on; or, if he please, doubles the increase as often as he will: the remaining abyss being still as far beyond the end of all these progressions, as it is from the length of a day or an hour. For nothing finite bears any proportion to infinite; and therefore our ideas, which are all finite, cannot bear any. Thus it is also in our idea of extension, when we in-

addition, as well as when we diminish and would enlarge our thoughts to space. After a few doublings of those ideas which are the largest we are accustomed to have, we lose the clear distinct idea of that space, it becomes a confusedly great one, with a surplus of still greater; about which, when we would argue or reason, we shall always find ourselves at a loss; confused ideas in our arguings and deductions from that part of them which is confused always leading us into confusion.

ENTHUSIASM.

IMMEDIATE revelation being a much easier way for men to establish their opinions, and regulate their conduct, than the tedious and not always successful labour of strict reasoning, it is no wonder that some have been very apt to pretend to revelation, and to persuade themselves that they are under the peculiar guidance of heaven in their actions and opinions, especially in those of them which they cannot account for by the ordinary methods of knowledge, and principles of reason. Hence we see that in all ages, men, in whom melancholy has mixed with devotion, or whose conceit of themselves has raised them into an opinion of a greater familiarity with God, and a nearer admittance to his favour than is afforded to others, have often flattered themselves with a *persuasion* of an immediate intercourse with the *Deity*, and frequent communications from the De-

vine Spirit. God, I own, cannot be denied to be able to enlighten the understanding by a ray darted into the mind immediately from the fountain of light; this they understand he has promised to do, and who then has so good a title to expect it as those who are his peculiar people, chosen by him, and depending on him?

Their minds being thus prepared, whatever groundless opinion comes to settle itself strongly upon their fancies, is an illumination from the spirit of God, and presently of divine authority: and whatsoever odd action they find in themselves a strong inclination to do, that impulse is concluded to be a call or direction from heaven, and must be obeyed; it is a commission from above, and they cannot err in executing it.

This I take to be properly enthusiasm, which, though founded neither on reason nor divine revelation, but rising from the conceits of a warmed or over-weened brain, works yet, where it once gets footing, more powerfully on the persuasions and actions of men, than either of those two, or both together: men being most forwardly obedient to the impulses they receive from themselves; and the whole man is sure to act more vigorously, where the whole man is carried by a natural motion. For strong conceit, like a new principle, carries all easily with it, when got above common sense, and freed from all restraint of reason, and check of reflection, it is heightened into a divine authority, inconcurrence with our own temper and inclination.

Though the odd opinions and extravagant actions *enthusiasm has* run men into, were enough to

warn them against this wrong principle, so apt to misguide them both in their belief and conduct; yet the love of something extraordinary, the ease and glory it is to be inspired, and be above the common and natural ways of knowledge, so flatters many men's laziness, ignorance, and vanity, that when once they are got into this way of immediate revelation, of illumination without search, and of certainty without proof, and without examination; it is a hard matter to get them out of it. Reason is lost upon them; they are above it: they see the light infused into their understandings, and cannot be mistaken; it is clear and visible there, like the light of bright sunshine; shews itself, and needs no other proof but its own evidence: they feel the hand of God moving them within, and the impulses of the spirit, and cannot be mistaken in what they feel. Thus they support themselves, and are sure reason has nothing to do with what they see and feel in themselves: what they have a sensible experience of admits no doubt, needs no probation. Would he not be ridiculous, who should require to have it proved to him that the light shines, and that he sees it? It is its own proof, and can have no other. When the spirit brings light into our minds, it dispels darkness. We see it as we do that of the sun at noon, and need not the twilight of reason to shew it us. This light from heaven is strong, clear, and pure, carries its own demonstration with it; and we may as naturally take a glow-worm to assist us to discover the sun, as to examine the celestial ray by our dim *candle*, reason.

This is the way of talking of these men: they

: sure, because they are sure; and their per-
asions are right, because they are strong in them.
r, when what they say is stripped of the meta-
or of seeing and feeling, this is all it amounts to:
d yet these similies so impose on them, that they
've them for certainty in themselves, and demon-
ation to others.

But to examine a little soberly this internal light,
d this feeling on which they build so much.
iese men have, they say, clear light, and they
:; they have awakened sense, and they feel:
s cannot, they are sure, be disputed them. For
ien a man says he sees or feels, nobody can
ny it him that he does so. But here let me ask:
is seeing, is it the perception of the truth of the
oposition, or of this, that it is a revelation from
od? This feeling, is it a perception of an in-
nation or fancy to do something, or of the spirit
God moving that inclination? These are two
ry different perceptions, and must be carefully
tinguished, if we would not impose upon our-
ves. I may perceive the truth of a proposition,
d yet not perceive that it is an immediate revela-
ion from God. I may perceive the truth of a
oposition in Euclid, without its being or my
rceiving it to be a revelation: nay, I may per-
ive I came not by this knowledge in a natural
ay, and so may conclude it revealed, without
rceiving that it is a revelation from God; be-
use there be spirits, which, without being di-
nely commissioned, may excite those ideas in
e, and lay them in such order before my mind,
at I may perceive their connexion. So that the
owledge of any proposition coming into my

mind, I know not how, is not a perception that it is from God. Much less is a strong persuasion, that it is true, a perception that it is from God, or so much as true. But however it be called light, and seeing, I suppose it is at most but belief and assurance: and the proposition taken for a revelation, is not such as they know to be true, but take to be true. For where a proposition is known to be true, revelation is needless: and it is hard to conceive how there can be a revelation to any one of what he knows already. If therefore it be a proposition which they are persuaded, but do not know, to be true, whatever they may call it, it is not seeing, but believing. For these are two ways, whereby truth comes into the mind, wholly distinct, so that one is not the other. What I see I know to be so by the evidence of the thing itself: what I believe I take to be so upon the testimony of another: but this testimony I must know to be given, or else what ground have I of believing? I must see that it is God that reveals this to me, or else I see nothing. The question then here is, how do I know that God is the revealer of this to me; that this impression is made upon my mind by his Holy Spirit, and that therefore I ought to obey it? If I know not this, how great soever the assurance is that I am possessed with, it is groundless: whatever light I pretend to, it is but enthusiasm. For whether the proposition supposed to be revealed, be in itself evidently true, or visibly probable, or by the natural ways of knowledge uncertain, the proposition that *must* be well grounded, and manifested to be *true*, is this, that God is the revealer of it, and

that what I take to be a revelation is certainly put into my mind by him, and is not an illusion dropped in by some other spirit, or raised by my own fancy. For if I mistake not, these men receive it for true, because they presume God revealed it.

Does it not then stand them upon, to examine on what grounds they presume it to be a revelation from God? or else all their confidence is mere presumption: and this light they are so dazzled with, is nothing but an ignis fatuus that leads them constantly round in this circle; it is a revelation, because they firmly believe it, and they believe it, because it is a revelation.

In all that is of divine revelation, there is need of no other proof but that it is an inspiration from God; for he can neither deceive nor be deceived. But how shall it be known that any proposition in our minds is a truth infused by God; a truth that is revealed to us by him, which he declares to us, and therefore we ought to believe? Here it is that enthusiasm fails of the evidence it pretends to. For men thus possessed boast of a light whereby they say they are enlightened, and brought into the knowledge of this or that truth. But if they know it to be a truth, they must know it to be so, either by its own self-evidence to natural reason, or by the rational proofs that make it out to be so. If they see and know it to be a truth, either of these two ways, they in vain suppose it to be a revelation. For they know it to be true the same way, that any other man naturally may know that it is so without the help of revelation. For thus all the truths, of what kind soever, that men uninspired are enlightened with, came into their

minds, and are established there. If they say they know it to be true, because it is a revelation from God, the reason is good: but then it will be demanded how they know it to be a revelation from God. If they say, by the light it brings with it, which shines bright in their minds, and they cannot resist: I beseech them to consider whether this be any more than what we have taken notice of already, viz. that it is a revelation, because they strongly believe it to be true. For all the light they speak of is but a strong, though ungrounded, persuasion of their own minds, that it is a truth. For rational grounds from proofs that it is a truth, they must acknowledge to have none; for then it is not received as a revelation, but upon the ordinary grounds that other truths are received: and if they believe it to be true, because it is a revelation, and have no other reason for its being a revelation, but because they are fully persuaded without any other reason that it is true; they believe it to be a revelation, only because they strongly believe it to be a revelation; which is a very unsafe ground to proceed on, either in our tenets or actions. And what readier way can there be to run ourselves into the most extravagant errors and miscarriages, than thus to set up fancy for our supreme and sole guide, and to believe any proposition to be true, any action to be right, only because we believe it to be so? The strength of our persuasions is no evidence at all of their own rectitude: crooked things may be as stiff and inflexible as straight; and men may be as positive *and peremtory* in error as in truth. How come *else the* untractable zealots in different and oppo-

site parties? For if the light, which every one thinks he has in his mind, which in this case is nothing but the strength of his own persuasion, be an evidence that it is from God, contrary opinions have the same title to inspirations; and God will not be only the father of light, but of opposite and contradictory lights, leading men contrary ways; and contradictory propositions will be divine truths, if an ungrounded strength of assurance be an evidence, that any proposition is a divine revelation.

This cannot be otherwise, whilst firmness of persuasion is made the cause of believing, and confidence of being in the right is made an argument of truth. St. Paul himself believed he did well, and that he had a call to it, when he persecuted the Christians, whom he confidently thought in the wrong: but yet it was he, and not they, who were mistaken. Good men are men still, liable to mistakes; and are sometimes warmly engaged in errors, which they take for divine truths, shining in their minds with the clearest light.

Light, true light, in the mind is, or can be nothing else, but the evidence of the truth of any proposition; and if it be not a self-evident proposition, all the light it has, or can have, is from the clearness and validity of those proofs, upon which it is received, To talk of any other light in the understanding is to put ourselves in the dark, or in the power of the Prince of darkness, and by our own consent to give ourselves up to delusion to believe a lie. For if strength of persuasion be the light, which must guide us; I ask, how shall any one distinguish between the delusions of Satan, and the inspirations of the Holy Ghost? He can trans-

form himself into an angel of light. And they are led by this sun of the morning, are as fully satisfied of the illumination, i. e. are as strongly persuaded, that they are enlightened by the spirit of God, as any one who is so: they acquiesce in it, rejoice in it, are acted by it; and nobody can be more sure, nor more in the right (if their strong belief may be judge) than they.

He, therefore, that will not give himself up to all the extravagancies of delusion and error, must bring this guide of his light within to the test. For God, when he makes the prophet, does not unmake the man. He leaves all his faculties in the natural state, to enable him to judge of his inspirations, whether they be of divine original or no. When he illuminates the mind with supernatural light, he does not extinguish that which is natural. If he would have us assent to the truth of any proposition, he either evidences that truth by the clear methods of natural reason, or else makes it known to be a truth which he would have us assent to by his authority; and convinces us that it is from him, by some marks which reason cannot be mistaken in. Reason must be our last judge and guide in every thing. I do not mean that we are to consult reason, and examine whether a proposition revealed from God can be made out by natural principles, and if it cannot, that then we may reject: but consult it we must, and examine whether it be a revelation from God or no. And if reason find it to be revealed from God, reason then declares for it, as much as for any *other truth*, and makes it one of her dictates. *Every* conceit that thoroughly warms our fancy

must pass for an inspiration, if there be nothing but the strength of our persuasions, whereby to judge of our persuasions; if reason must not examine their truth by something extrinsical to the persuasions themselves, inspirations and delusions, truth and falshood, will have the same measure, and will not be possible to be distinguished.

If this internal light, or any proposition which under that title we take for inspired, be conformable to the principles of reason, or to the word of God, which is attested revelation, reason warrants it, and we may safely receive it for true, and be guided by it in our belief and actions; if it receive no testimony nor evidence from either of these rules, we cannot take it for a revelation, or so much as for true, till we have some other mark that it is a revelation, besides our believing that it is so. Thus we see the holy men of old, who had revelations from God, had something else besides that internal light of assurance in their own minds, to testify to them that it was from God. They were not left to their own persuasions alone, that those persuasions were from God; but had outward signs to convince them of the author of those revelations. And when they were to convince others, they had a power given them to justify the truth of their commission from heaven, and by visible signs to assert the divine authority of a message they were sent with. Moses saw the bush burn without being consumed, and heart a voice out of it. This was something besides finding an impulse upon his mind to go to Pharaoh, that he might bring his *brethren out* of Egypt: and yet he thought not

this enough to authorize him to go with
message, till God, by another miracle of
rod turned into a serpent, had assured him
power to testify his mission, by the same mi
repeated before them, whom he was sen
Gideon was sent by an angel to deliver I
from the Midianites, and yet he desired a si
convince him that this commission was from
These, and several the like instances to be f
among the prophets of old, are enough to
that they thought not an inward seeing or pe
sion of their own minds, without any other
a sufficient evidence that it was from God; th
the scripture does not every where mention
demanding or having such proofs.

FANCY.

When children have, by repeated sensa
got ideas fixed in their memories, they begi
degrees to learn the use of signs. And when
have got the skill to apply the organs of spee
the framing of articulate sounds, they beg
make use of words, to signify their ideas to ó
These verbal signs they sometimes borrow
others, and sometimes make themselves, as an
may observe among the new and unusual n
children often give to things in the first use o
guage.

GAMESTERS INJURIOUS TO TRADE.

As for the brokers, since they too must lay up the money, coming in by retail, either to go to market, and buy wares, or to pay at the day appointed, which is often six months, for those wares which they have already; we cannot suppose them to have less by them, one with another, than one-twentieth part of their yearly returns. Whether the money be their own, or they be indebted so much, or more, it matters not, if it be necessary they should have constantly by them, comparing one time with another, at least one-twentieth part of their yearly return.

Indeed, in some great towns, where the bankers are ready at hand to buy bills, or any other way to lend money for a short time at great interest, there perhaps the merchant is not forced to keep so much money by him, as in other places, where they have not such a supply; but if you consider what money to do this must necessarily be constantly lodged in the banker's hands, the case will be much the same.

To these sums, if you add what part of the money of a country scholars of all sorts, women, gamesters, and great men's menial servants, and all such that do not contribute at all to trade, either as landholders, labourers, or brokers, will unavoidably have constantly in their hands; it cannot well be thought that less than one-fiftieth part of the labourer's wages, one-fourth part of the landholder's yearly revenue, and one-twentieth part of the broker's yearly returns in ready money, will be enough to drive the trade of any country.

At least to put it beyond exception low enough, it cannot be imagined that less than one moiety of this, *i. e.* less than one-hundredth part of the labourer's yearly wages, one-eighth part of the landholder's yearly revenue, and one-fortieth part of the broker's yearly returns, in ready money, can be enough to move the several wheels of trade, and keep up commerce, in that life and thriving posture it should be; and how much the ready cash of any country is short of this proportion, so much must the trade be impaired and hindred for want of money.

But however these measures may be mistaken, this is evident, that the multiplying of brokers hinders the trade of any country, by making the circuit, which the money goes, larger; and in that circuit more stops, so that the returns must necessarily be slower and scantier, to the prejudice of trade: besides that, they eat up too great a share of the gains of trade: by that means starving the labourer, and impoverishing the landholder, whose interest is chiefly to be taken care of, it being a settled, unmovable concernment in the commonwealth.

If this be so, it is past question that all encouragement should be given to artificers; and things so ordered, as much as might be, that those who make should also vend and retail out their own commodities, and they be hindered, as much as possible, from passing here at home, through divers hands to the last buyer. Lazy and unworking shopkeepers in this being worse than gamesters, *that they do* not only keep so much of the money *of a country* constantly in their hands, but also make

the public pay them for their keeping of it. Though gaming too, upon the account of trade (as well as other reasons) may well deserve to be restrained; since gamesters, in order to their play, keep great sums of money by them, which there lies dead; for though gamester's money shifts masters oftener than any, and is tumbled up and down with every cast of a die, yet as to the public it lies perfectly still, and no more of it comes into trade, than they spend in eating and wearing.

GEOGRAPHY.

GEOGRAPHY, I think, should be begun with; for the learning of the figure of the globe, the situation and boundaries of the four parts of the world, and that of particular kingdoms and countries, being only an exercise of the eyes and memory, a child with pleasure will learn and retain them: and this is so certain, that I now live in the house with a child, whom his mother has so well instructed this way in geography, that he knew the limits of the four parts of the world, could readily point, being asked, to any country upon the globe, or any county in the map of England; knew all the great rivers, promontories, straits, and bays in the world, and could find the longitude and latitude of any place before he was six years old. These things, that he will thus learn by sight, and have by rote in his memory, are not all, I confess, that he is to learn upon the globes. But yet it is a good step and preparation to it, and will make *the remainder* much easier, when his judgment is

grown ripe enough for it: besides that, it gets so much time now, and by the pleasure of knowing things, leads him on insensibly to the gaining of languages.

HABIT.

It is worth our observing, which of all our simple ideas have been most modified, and had most mixed ideas made out of them, with names given to them; and those have been these three; thinking and motion (which are the two ideas which comprehend in them all action) and power, from whence these actions are conceived to flow. The simple ideas, I say, of thinking, motion, and power, have been those which have been most modified, and out of whose modifications have been made most complex modes, with names to them. For action being the great business of mankind, and the whole matter about which all laws are conversant, it is no wonder that the several modes of thinking and motion should be taken notice of, the ideas of them observed, and laid up in the memory, and have names assigned to them; without which, laws could be but ill made, or vice and disorder repressed. Nor could any communication be well had amongst men, without such complex ideas, with names to them: and therefore men have settled names, and supposed settled ideas in their minds, of modes of action distinguished by their causes, means, objects, ends, instruments, time, place, and other circumstances, and also of their powers fitted for those actions: v. g.

boldness in the power to speak or do what we intend, before others, without fear or disorder; and the Greeks call the confidence of speaking by a peculiar name, παῤῥησία: which power or ability in man, of doing any thing, when it has been acquired by frequent doing the same thing, is that idea we name habit; when it is forward and ready upon every occasion to break into action, we call it disposition. Thus testiness is a disposition or aptness to be angry.

HAPPINESS AND MISERY.

If it be asked, what it is moves desire? I answer, happiness, and that alone. Happiness and misery are the names of two extremes, the utmost bounds whereof we know not; it is what "eye hath not seen, ear not heard, nor hath it entered into the heart of man to conceive." But of some degrees of both we have very lively impressions, made by several instances of delight and joy on the one side, and torment and sorrow on the other; which for shortness sake I shall comprehend under the names of pleasure and pain, there being pleasure and pain of the mind as well as the body: "with him is fullness of joy and pleasure for evermore." Or, to speak truly, they are all of the mind; though some have their rise in the mind from thought, others in the body from certain modifications of motion.

Happiness then in its full extent is the utmost pleasure we are capable of, and misery the utmost pain: and the lowest degree of what can be called

happiness is so much ease from all pain, and so much present pleasure, as without which any one cannot be content. Now because pleasure and pain are produced in us by the operation of certain objects, either on our mind or our bodies, and in different degrees; therefore what has an aptness to produce pleasure in us is that we call good, and what is apt to produce pain in us we call evil, for no other reason, but for its aptness to produce pleasure and pain in us, wherein consists our happiness and misery. Farther, though what is apt to produce any degree of pleasure, be in itself good; and what is apt to produce any degree of pain, be evil; yet it often happens, that we do not call it so, when it comes in competition with a greater of its sort; because when they come in competition, the degrees also of pleasure and pain have justly a preference. So that if we will rightly estimate what we call good and evil, we shall find it lies much in comparison: for the cause of every less degree of pain, as well as every greater degree of pleasure, has the nature of good, and vice versa.

Though this be that which is called good and evil; and all good be the proper object of desire in general; yet all good, even seen, and confessed to be so, does not necessarily move every particular man's desire, but only that part, or so much of it as is considered and taken to make a necessarily part of his happiness. All other good, however great in reality or appearance, excites not a man's desires, who look not on it to make a part of that happiness, wherewith he, in his present thoughts, *can satisfy* himself. Happiness under this view *every one* constantly pursues, and desires what

makes any part of it: other things, acknowledged to be good, he can look upon without desire, pass by, and be content without. There is no-body, I think, so senseless as to deny, that there is pleasure in knowledge: and for the pleasures of sense, they have too many followers to let it be questioned, whether men are taken with them or no. Now let one man place his satisfaction in sensual pleasures, another in the delight of knowledge: though each of them cannot but confess, there is great pleasure in what the other pursues; yet neither of them making the other's delight a part of his happiness, there desires are not moved, but each is satisfied without what the other enjoys, and so his will is not yet determined to the pursuit of it. But yet as soon as the studious man's hunger and thirst makes him uneasy, he, whose will was never determined to any pursuit of good cheer, poignant sauces, delicious wine, by the pleasant taste he has found in them, is, by the uneasiness of hunger and thirst, presently determined to eating and drinking, though possibly with great indifferency, what wholesome food comes in his way. And on the other side, the epicure buckles to study, when shame, or the desire to recommend himself to his mistress, shall make him uneasy in the want of any sort of knowledge. Thus, how much soever men are in earnest, and constant in pursuit of happiness, yet they may have a clear view of good, great and confessed good, without being concerned for it, or moved by it, if they think they can make up their happiness without it. Though as to pain, that they are always concerned for; they can *feel no uneasiness* without being moved. And

therefore being uneasy in the want of whatev judged necessary to their happiness, as soon a good appears to make a part of their prope happiness, they begin to desire it.

This, I think, any one may observe in hir and others, that the greater visible good do always raise men's desires, in proportion t greatness, it appears, and is acknowledged to though every little trouble moves us, and se on work to get rid of it. The reason wher evident from the nature of our happiness and n itself. All present pain, whatever it be, ma part of our present misery; but all absent does not at any time make a necessary part c present happiness, nor the absence of it m part of our misery. If it did, we should b stantly and infinitely miserable; there being nite degrees of happiness, which are not i possession. All uneasiness therefore beir moved, a moderate portion of good serves s sent to content him; and some few degr pleasure in a succession of ordinary enjoy makes up a happiness, wherein they can be fied. If this were not so, there could be nc for those indifferent and visibly trifling actio which our wills are so often determined, wherein we voluntarily waste so much of our which remissness could by no means consist constant determination of will or desire greatest apparent good. That this is so, few people need go far from home to be conv And indeed in this life there are not many *happiness* reaches so far as to afford them *staut* train of moderate mean pleasures,

any mixture of uneasiness; and yet they could be content to stay here for ever: though they cannot deny, but that it is possible there may be a state of eternal durable joys after this life, far surpassing all the good that is to be found here. Nay, they cannot but see, that it is more possible than the attainment and continuation of that pittance of honour, riches, or pleasures, which they pursue, and for which they neglect that eternal state: but yet in full view of this difference, satisfied of the possibility of a perfect, secure, and lasting happiness in a future state, and under a clear conviction, that it is not to be had here, whilst they bound their happiness within some little enjoyment, or aim of this life, and exclude the joys of heaven from making any necessary part of it; their desires are not moved by this greater apparent good, nor their wills determined to any action, or endeavour for its attainment.

The ordinary necessities of our lives fill a great part of them with the uneasiness of hunger, thirst, heat, cold, weariness with labour, and sleepiness, in their constant returns, &c. To which, if, besides accidental harms, we add the fantastical uneasiness (as itch after honour, power, or riches, &c.) which acquired habits by fashion, example and education, have settled in us, and a thousand other irregular desires, which custom has made natural to us; we shall find, that a very little part of our life is so vacant from these uneasinesses, as to leave us free to the attraction of remoter absent good. We are seldom at ease, and free enough from the solicitation of our natural or adopted desires, but a constant succession of uneasinesses out

of that stock, which natural wants or acquired habits have heaped up, take the will in their turns: and no sooner is one action dispatched, which by such a determination of the will we are set upon, but another uneasiness is ready to set us on work. For the removing the pains we feel, and are at present pressed with, being the getting out of misery, and consequently the first thing to be done in order to happiness, absent good, though thought on, confessed, and appearing to be good, not making any part of this unhappiness in its absence, is jostled out to make way for the removal of those uneasinesses we feel; till due and repeated contemplation has brought it nearer to our mind, given some relish of it, and raised in us some desire; which then beginning to make a part of our present uneasiness, stands upon fair terms with the rest, to be satisfied; and so, according to its greatness and pressure, comes in its turn, to determine the will.

And thus, by a due consideration, and examining any good proposed, it is in our power to raise our desires in a due proportion to the value of that good, whereby in its turn and place it may come to work upon the will, and be pursued. For good, though appearing, and allowed ever so great, yet till it has raised desires in our minds, and thereby made us uneasy in its want, it reaches not our wills; we are not within the sphere of its activity; our wills being under the determination only of those uneasinesses which are at present to us, which (whilst we have any) are always soliciting, *and ready* at hand to give the will its next determination: the balancing, when there is any in the *mind, being* only which desire shall be next satis-

fied, which uneasiness first removed. Whereby it comes to pass, that as long as any uneasiness, any desire remains in our mind, there is no room for good, barely as such, to come at the will, or at all to determine it. Because as has been said, the first step in our endeavours after happiness being to get wholly out of the confines of misery, and to feel no part of it, the will can be at leisure for nothing else, till every uneasiness we feel be perfectly removed; which, in the multitude of wants and desires we are beset with in this imperfect state, we are like to be ever freed from in this world.

There being in us a great many uneasinesses always soliciting, and ready to determine the will, it is natural, that the greatest and most pressing should determine the will to the next action; and so it does for the most part, but not always. For the mind having in most cases, as is evident in experience, a power to suspend the execution and satisfaction of any of its desires, and so all, one after another; is at liberty to consider the objects of them, examine them on all sides, and weigh them with others. In this lies the liberty man has; and from the not using of it right comes all that variety of mistakes, errors, and faults which we run into in the conduct of our lives, and our endeavours after happiness; whilst we precipitate the determination of our wills, and engage too soon before due examination. To prevent this, we have a power to suspend the prosecution of this or that desire, as every one daily may experiment in himself. This seems to me the source of all liberty; *in this seems to* consist that which is (as I think

improperly) called free-will. For during this suspension of any desire, before the will be determined to action, and the action (which follows that determination) done, we have opportunity to examine, view, and judge of the good or evil of what we are going to do; and when upon due examination, we have judged, we have done our duty, all that we can or ought to do in pursuit of our happiness; and it is not a fault, but a perfection of our nature to desire, will, and act according to the last result of fair examination.

This is so far from being a restraint or diminution of freedom, that it is the very improvement and benefit of it; it is not an abridgment, it is the end and use of our liberty; and the farther we are removed from such a determination, the nearer we are to misery and slavery. A perfect indifferency in the mind, not determinable by its last judgment of the good or evil that is thought to attend its choice, would be so far from being an advantage and excellency of any intellectual nature, that it would be an imperfection on the other side. A man is at liberty to lift up his head, or let it rest quiet; he is perfectly indifferent in either; and it would be an imperfection in him, if he wanted that power, if he were deprived of that indifferency. But it would be as great an imperfection if he had the same indifferency, whether he would prefer the lifting up his hand, or its remaining in rest, when it would save his head or eyes from a blow he sees coming: it is as much a perfection, that desire, or *the power* of preferring, should be determined by *good*, as that the power of acting should be determined by the will; and the certainer such deter-

mination is, the greater is the perfection. Nay, were we determined by any thing but the last result of our own minds, judging of the good or evil of any action, we were not free: the very end of our freedom being, that we may attain the good we choose. And therefore every man is put under a necessity by his constitution, as an intelligent being, to be determined in willing by his own thought and judgment what is best for him to do: else he would be under the determination of some other than himself, which is want of liberty. And to deny that a man's will, in every determination, follows his own judgment, is to say, that a man wills and acts for it. For if he prefers it in his present thoughts before any other, it is plain he then thinks better of it, and would have it before any other; unless he can have and not have it, will and not will it, at the same time; a contradiction too manifest to be admitted!

If we look upon those superior beings above us, who enjoy perfect happiness, we shall have reason to judge that they are more steadily determined in their choice of good than we; and yet we have no reason to think they are less happy, or less free than we are. And if it were fit for such poor finite creatures as we are to pronounce what infinite wisdom and goodness could do, I think we might say, that God himself cannot choose what is not good; the freedom of the Almighty hinders not his being determined by what is best.

But to give a right view of this mistaken part of liberty, let me ask, "Would any one be a changeling, because he is less determined by wise considerations than a wise man? It is worth the name

of freedom to be at liberty to play the fool, and draw shame and misery upon a man's self?" If to break loose from the conduct of reason, and to want that restraint of examination and judgment, which keeps us from choosing or doing the worse, be liberty, true liberty, madmen and fools are the only freemen: but yet, I think, nobody would choose to be mad for the sake of such liberty, but he that is mad already. The constant desire of happiness, and the constraint he puts upon us to act for it, nobody, I think, accounts an abridgment of liberty, or at least an abridgment of liberty to be complained of. God Almighty himself is under the necessity of being happy; and the more any intelligent being is so, the nearer is its approach to infinite perfection and happiness. That in this state of ignorance we short-sighted creatures might not mistake true felicity, we are endowed with a power to suspend any particular desire, and keep it from determining the will, and engaging us in action. This is standing still, where we are not sufficiently assured of the way: examination is consulting a guide. The determination of the will upon inquiry is following the direction of that guide: and he that has a power to act or not to act, according as such determination directs, is a free agent; such determination abridges not that power wherein liberty consists. He that has his chains knocked off, and the prison-doors set open to him, is perfectly at liberty, because he may either go or stay, as he best likes; though his preference be determined to stay, by the darkness of *the night*, or illness of the weather, or want of *other lodging*. He ceases not to be free, though

the desire of some convenience to be had there absolutely determines his preference, and makes him stay in his prison.

As therefore the highest perfection of intellectual nature lies in a careful and constant pursuit of true and solid happiness, so the care of ourselves, that we mistake not imaginary for real happiness, is the necessary foundation of our liberty. The stronger ties we have to an unalterable pursuit of happiness in general, which is our greatest good, and which, as such, our desires always follow, the more are we free from any necessary determination of our will to any particular action, and from a necessary compliance with our desire, set upon any particular, and then appearing preferable till we have duly examined, whether it has a tendency to, or be inconsistent with our real happiness: and therefore till we are as much informed upon this enquiry, as the weight of the matter, and the nature of the case demands; we are, by the necessity of preferring and pursuing true happiness as our greatest good, obliged to suspend the satisfaction of our desires in particular cases.

This is the hinge on which turns the liberty of intellectual beings, in their constant endeavours after and a steady prosecution of true felicity, that they can suspend this prosecution in particular cases, till they have looked before them, and informed themselves whether that particular thing, which is then proposed or desired, lie in the way to their main end, and make a real part of that which is their greatest good: for the inclination and tendency of their nature to happiness is an obligation and motive to them, to take care not to mis-

take or miss it; and so necessarily puts them upon caution, deliberation, and wariness, in the direction of their particular actions, which are the means to obtain it. Whatever necessity determines to the pursuit of real bliss, the same necessity with the same force establishes suspense, deliberation, and scrutiny of each successive desire, whether the satisfaction of it does not interfere with our true happiness, and mislead us from it. This, as seems to me, is the great privilege of finite intellectual beings; and I desire it may be well considered, whether the great inlet and exercise of all the liberty men have, are capable of, or can be useful to them, and that whereon depends the turn of their actions, does not lie in this, that they can suspend their desires, and stop them from determining their will to any action, till they have duly and fairly examined the good and evil of it, as far forth as the weight of the thing requires. This we are able to do; and when we have done it, we have done our duty, and all that is in our power, and indeed all that needs. For since the will supposes knowledge to guide its choice, and all that we can do is to hold our wills undetermined, till we have examined the good and evil of what we desire. What follows after that, follows in a chain of consequences linked one to another, all depending on the last determination of the judgment; which, whether it shall be upon a hasty and precipitate view, or upon a due and mature examination, is in our power: experience showing us, that in most cases we are able to suspend the present satisfaction of any desire.

But if any extreme disturbance (as sometimes it happens) possesses our whole mind, as when the pain of the rack, an impetuous uneasiness, as of love, anger, or any other violent passion, running away with us, allows us not the liberty of thought, and we are not masters enough of our own minds to consider thoroughly, and examine fairly; God, who knows our frailty, pities our weakness, and requires of us no more than we are able to do, and sees what was and what was not in our power, will judge as a kind and merciful father. But the forbearance of a too hasty compliance with our desires, the moderation and restraint of our passions, so that our understandings may be free to examine, and reason unbiassed give its judgment, being that whereon a right direction of our conduct to true happiness depends; it is in this we should employ our chief care and endeavours. In this we should take pains to suit the relish of our minds to the true intrinsic good or ill that is in things, and not permit an allowed or supposed possible great and weighty good to slip out of our thoughts, without leaving any relish, any desire of itself there, till, by a due consideration of its true worth, we have formed appetites in our mind suitable to it, and made ourselves uneasy in the want of it, or in the fear of losing it. And how much this is in every one's power, by making resolutions to himself, such as he may keep, is easy for every one to try. Nor let any one say he cannot govern his passions, nor hinder them from breaking out, and carrying him into action; for what he can do before a prince, or a great man,

... or in the presence of God, if ...

... what has been said, it is easy to give an ... how it comes to pass, that though all men ... happiness, yet their wills carry them so ... and consequently some of them to what ... And to this I say, that the various and ... choices that men make in the world, do ... gue that they do not all pursue good; but ... the same thing is not good to every man alike. ... variety of pursuits shows, that every one does ... place his happiness in the same thing, or choose ... same way to it. Were all the concerns of man ... terminated in this life, why one followed study and ... knowledge, and another hawking and hunting; why one choose luxury and debauchery, and another sobriety and riches; would not be, because every one of these did not aim at his own happiness, but because their happiness was placed in different things. And therefore it was a right answer of the physician to his patient that had sore eyes: If you have more pleasure in the taste of wine than in the use of your sight, wine is good for you; but if the pleasure of seeing be greater to you than that of drinking, wine is nought.

The mind has a different relish, as well as the palate; and you will as fruitlessly endeavour to delight all men with riches or glory (which yet some men place their happiness in) as you would to satisfy all men's hunger with cheese or lobsters; which, though very agreeable and delicious fare to some, are to others extremely nauseous and offensive: and many people would with reason prefer the griping of an hungry belly, to those dishes

which are a feast to others. Hence it was, I think, that the philosophers of old did in vain enquire, whether summum bonum consisted in riches, or bodily delights, or virtue, or contemplation. And they might have as reasonably disputed, whether the best relish were to be found in apples, plums, or nuts, and have divided themselves into sects upon it. For as pleasant tastes depend not on the things themselves, but their agreeableness to this or that particular palate, wherein there is great variety; so the greatest happiness consists is the having those things which produce the greatest pleasure and in the absence of those which cause any disturbance, and pain. Now, these, to different men, are very different things. If they can only enjoy, it is not strange nor unreasonable, that they should seek their happiness by avoiding all things that disease them here, and by pursuing all that delight them; wherein it will be no wonder to find variety and difference. For if there be no prospect beyond the grave, the inference is certainly right, "let us eat and drink," let us enjoy what we delight in, "for to-morrow we shall die." This, I think, may serve to shew us the reason, why, though all men's desires tend to happiness, yet they are not moved by the same object. Men may choose different things, and yet all choose right; supposing them only like a company of poor insects, whereof some are bees, delighted with flowers and their sweetness; others beetles, delighted with other kinds of viands, which having enjoyed for a season, they would cease to be, and exist no more for ever.

HISTORY.

I THINK nothing more valuable than the records of antiquity: I wish we had more of them, and more uncorrupted. But this truth itself forces me to say, that no probability can arise higher than its first original. What has no other evidence than the single testimony of one only witness, must stand or fall by its own testimony, whether good, bad, or indifferent; and though cited afterwards by hundreds of others, one after another, is so far from receiving any strength thereby, that it is only the weaker. Passion, interest, inadvertency, mistake of his meaning, and a thousand odd reasons, or capricio's, men's minds are acted by (impossible to be discovered) may make one man quote another man's words or meaning wrong. He that has ever so little examined the citations of writers, cannot doubt how little credit the quotations deserve, where the originals are wanting: and consequently how much less quotations of quotations can be relied on. This is certain, that what in one age was affirmed upon slight grounds, can never after come to be more valid in future ages, by being often repeated. But the farther still it is from the original, the less valid it is, and has always less force in the mouth or writing of him that last made use of it, than in his from whom he received it.

IDEAS.

If we will attentively consider new-born children, we shall have little reason to think, that they bring many ideas into the world with them. For bating perhaps some faint ideas of hunger and thirst, and warmth, and some pains which they may have felt in the womb, there is not the least appearance of any settled ideas at all in them; especially of ideas, answering the terms, which make up those universal propositions, that are esteemed innate principles. One may perceive how, by degrees, afterwards, ideas come into their minds; and that they get no more, nor no other, than what experience, and the observation of the things, that come in their way, furnish them with: which might be enough to satisfy us, that they are not original characters, stamped on the mind.

MORALITY.

Since the faculties are not fitted to penetrate into the internal fabrick and real essences of bodies; but yet plainly discover to us the being of a God, and the knowledge of ourselves, enough to lead us into a full and clear discovery of our duty and great concernment; it will become us, as rational creatures, to employ those faculties we have about what they are most adapted to, and follow the direction of nature, where it seems to point us out the way. For it is rational to conclude that our *proper employment* lies in those inquiries, and in

that sort of knowledge which is most suited to our natural capacities, and carries it in our greatest interest, i. e, the condition of our eternal estate. Hence I think I may conclude, that morality is the proper science and business of mankind in general; (who are both concerned, and fitted to search out their summum bonum) as several arts, conversant about several parts of nature, are the lot and private talent of particular men, for the common use of human life, and their own particular subsistence in this world. Of what consequence the discovery of one natural body, and its properties, may be to human life, the whole great continent of America is a convincing instance: whose ignorance in useful arts, and want of the greatest part of the conveniencies of life, in a country that abounded with all sorts of natural plenty, I think, may be attributed to their ignorance of what was to be found in a very ordinary despicable stone, I mean the mineral of iron. And whatever we think of our arts or improvements in this part of the world, where knowledge and plenty seem to vie with each other; yet to any one, that will seriously reflect on it, I suppose, it will appear past doubt, that were the use of iron lost among us, we should in a few ages be unavoidably reduced to the wants and ignorance of the ancient savage Americans, whose natural endowments and provisions come no way short of those of the most flourishing and polite nations. So that he who first made known the use of that contemptible mineral, may be truly styled the father of arts, and author of plenty.

THE PASSIONS.

PLEASURE and pain, and that which causes them, good and evil, are the hinges on which our passions turn: and if we reflect on ourselves, and observe how these, under various considerations, operate in us; what modifications or tempers of mind, what internal sensations (if I may so call them) they produce in us, we may thence form to ourselves the ideas of our passions.

Thus any one reflecting upon the thought he has of the delight, which any present or absent thing is apt to produce in him, has the idea we call love. For when a man declares in autumn, when he is eating them, or in spring, when there are none, that he loves grapes, it is no more but that the taste of grapes delight him; let an alteration of health or constitution destroy the delight of their taste, and he then can be said to love grapes no longer.

On the contrary, the thought of the pain, which any thing present or absent is apt to produce in us, is what we call hatred. Were it my business here to inquire any farther than into the bare ideas of our passions, as they depend on different modifications of pleasure and pain, I should remark, that our love and hatred of inanimate insensible beings, is commonly founded on that pleasure and pain which we receive from their use and application any way to our senses, though with their destruction: but hatred or love, to beings capable of happiness or misery, is often the uneasiness or delight, which we find in ourselves arising from a consider-

ration of their very being or happiness. Thus the liking and welfare of a man's children or friends, producing constant delight in him, he is said constantly to love them. But it suffices to note, that our ideas of love and hatred are but the dispositions of the mind, in respect of pleasure and pain in general, however caused in us.

The uneasiness a man finds in himself upon the absence of any thing, whose present enjoyment carries the idea of delight with it, is that we call desire; which is greater or less, as that uneasiness is more or less vehement. Where, by the bye, it may perhaps be of some use to remark, that the chief, if not only spur to human industry and action, is uneasiness. For whatsoever good is proposed, if its absence carries no displeasure or pain with it, there is no desire of it, nor endeavour after it; there is no more but a bare velleity, the term used to signify the lowest degree of desire, and that which is next to none at all, when there is so little uneasiness in the absence of any thing, that it carries a man no farther than some faint wishes for it, without any more effectual or vigorous use of the means to attain it. Desire is also stopped or abated by the opinion of the impossibility or unattainableness of the good proposed, as far as the uneasiness is cured or allayed by that consideration. This might carry our thoughts farther, were it seasonable in this place.

Joy is a delight of the mind, from the consideration of the present or assured approaching possession of a good; and we are then possessed of any *good when* we have it so in our power, that we *can use it* when we please. Thus a man almost

starved has joy at the arrival of relief, even before he has the pleasure of using it: and a father, in whom the very well-being of his children causes delight, is always as long as his children are in such a state, in the possession of that good; for he needs but to reflect on it, to have that pleasure.

Sorrow is uneasiness in the mind, upon the thought of a good lost, which might have been enjoyed longer; or the sense of a present evil.

Hope is that pleasure in the mind, which every one finds in himself, upon the thought of a profitable future enjoyment of a thing, which is apt to delight him.

Fear is an uneasiness of the mind, upon the thought of future evil likely to befal us.

Despair is the thought of the unattainableness of any good, which works differently in men's minds, sometimes producing uneasiness or pain, sometimes rest and indolency.

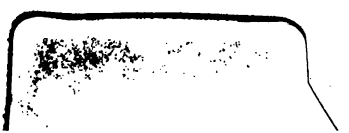
Anger is uneasiness or discomposure of the mind, upon the receipt of any injury, with a present purpose of revenge.

Envy is an uneasiness of the mind, caused by the consideration of a good we desire, obtained by one we think should not have had it before us.

These two last, envy and anger, not being caused by pain and pleasure, simply in themselves, but having in them some mixed considerations of ourselves and others, are not therefore to be found in all men, because those other parts of valuing their merits, or intending revenge, is wanting in them: but all the rest terminating purely in pain and pleasure, are, I think, to be found in all men. For we love, desire, rejoice, and hope, only in

respect of pleasure; we hate, fear, and grieve, only in respect of pain ultimately: in fine, all these passions are moved by things, only as they appear to be the causes of pleasure and pain, or to have pleasure or pain some way or other annexed to them.' Thus we extend our hatred usually to the subject (at least if a sensible or voluntary agent) which has produced pain in us, because the fear it leaves is a constant pain: but we do not so constantly love what has done us good; because pleasure operates not so strongly on us as pain, and because we are not so ready to have hope it will do so again. But this by the bye.

By pleasure and pain, delight and uneasiness, I must all along be understood (as I have above-intimated) to mean not only bodily pain and pleasure; but whatsoever delight or uneasiness is felt by us, whether arising from any grateful or unacceptable sensation or reflection.

THE END.

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